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EFFECTIVENESS OF THE SANITATION CERTIFICATION PROCESS

by

Ronald S. Manfredo

A thesis submitted to the
Faculty of the School of Food, Hotel and Travel Management
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the Rochester Institute of Technology
in partial fulfillment of the requirements
for the degree
of
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ROCHESTER INSTITUTE OF TECHNOLOGY
School of Food, Hotel and Travel Management
Department of Graduate Studies

M.S. Hospitality-Tourism Management
Presentation of Thesis/Project Findings

Name: Ronald Manfredo Date: 6/15/99 SS#: _____

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Specific Recommendations: (Use other side if necessary.)

Thesis Committee: (1) Dr. Richard Marecki (Chairperson)

(2) _____

OR (3) _____

Faculty Advisor: _____

Number of Credits Approved: _____

6/15/99

Date Committee Chairperson's Signature

6/15/99

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Abstract

The objective of the survey was to illustrate that sanitation certification leads to a cleaner kitchen.

Questionnaires were sent to 180 commercial establishments varying from restaurants, hotels, hospitals, and resorts. Statistical analysis results were calculated using Minitab statistical analysis computer program.

Results from the survey indicated that 69 percent of the respondents were self-operated. Management in over 58 percent of the response didn't require their staff to be certified in a sanitation program. However, 57 percent of the managers were required to be certified in some type of program. Sixty nine percent of the respondents felt a course and an examination was the best way to achieve sanitation certification.

Responses also indicated that sanitation programs significantly improve food protection practices. Over 70 percent of the survey respondents also indicated that they were satisfied with their current sanitation certification program. Although certification methods varied in facilities, the majority of opinions believed that sanitation certification greatly improved the cleanliness of an operation.

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And last but not least, Ms. Kim Osland for her outstanding administrative support.

Dedication

To my mother Elizabeth “Evita” who has always provided strength, support and love throughout my life.

To my dearest Lorraine, who has been a wonderful inspiration in my life and career.

And to Sabrina “Billy.”

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Chapter 1

Introduction

Introduction

In the demanding, frustrating, pressure-packed world of food service, the demands to deliver safe presentable service are paramount.

The challenges of training a resistant, unenthusiastic workforce can be quite intimidating. Does a food service worker with 20 years experience want to be told how to cook a hamburger? Why would a dishwasher really care to submerge a pot in sanitizing solution for one minute, or properly air dry it for storage?

The importance of sound sanitation practices encompass everything from delivery of food to serving it to the customer's table. This analysis will determine the effectiveness of sanitation certification and the importance of proper sanitation protocol.

Problem Statement

The need for sanitation certification is of highest priority. Foodborne disease remains one of the most common causes of illness related to infectious disease in the United States. The number of reported cases, severity of illness and incidences of fatality indicate that contamination by pathogenic organisms is a great threat to public health. As state and federal regulators concentrate more heavily on safe food handling systems, the need for strict management overseeing increases. Industry personnel, from dietary aides to corporate vice presidents, must realize the need for such a program. The mindset of an

average food service worker is to "just put in your 8 hours and punch out". The concern for the well being of others is not considered. Outbreaks of sanitation accidents are on the rise nationwide. For this reason, stronger designs must be produced to ensure these problems are corrected. The target of this study will focus on the reasons to develop a protocol for sanitation in the food service industry.

Background

There is a growing concern for the food service industry to reform its sanitation practices. The facts are that the majority of food service facilities aren't aware of what really constitutes sanitation protocol. The urgency to produce and maintain such a system is imperative.

Purpose

The purpose of this study is to examine the effects that food sanitation certification has in a commercial food service work environment. The results generated from this study will reveal the importance of utilizing assessment tools offered by a structured program of guidelines and protocol.

Significance

Currently over fifty cents of every food dollar is spent outside of the home, this figure up from thirty-four cents in the early 1980's, with this trend is expected to keep rising. With this in mind, a new emphasis on sanitation and food safety is of extreme

importance. Through an engineered system of monitoring, surveying and continuous training the following study will demonstrate that such a system is feasible.

Methodology

This project will focus on answering the question of whether food service sanitation certification will result in a more sanitary operation. Data will be collected by questionnaires and face-to-face interviews of two groups, one that has a certain percentage of their kitchen employees certified in sanitation and another group which has less than a certain percentage of certified employees.

Hypothesis

The findings in this study will determine that food certification will result in more sanitary operations than if no certification is implemented.

Definition of Terms

Bacterial Pathogens - Any disease-causing agent, usually a living micro-organism.

Certification - The level of knowledge that a food service worker has gained through a prescribed course of study.

Contamination - The unintended presence of harmful substances or micro-organisms in food or water.

Escherichia Coli - Facultative non-spore-forming bacterium that can cause gastroenteritis in humans.

Food Contamination - Adulteration of consumable products by air, surface, or water borne pathogens.

Foodborne Illness - An illness that results from eating food that contains live pathogenic bacteria or other micro-organisms.

Frequency - The amount of times a worker practices a task.

HACCP - Hazard Analysis Critical Control Point. A food safety and self-inspection system that highlights potentially hazardous foods and how they are handled in the food service environment. An example of an HACCP Flow Chart is included in Appendix C.

Hygiene - A science of the establishment and maintenance of health.

Intoxication - An abnormal state that is essentially a poisoning.

Listeria monocytogenes - Facultative, non-spore-forming bacterium found in soil. It grows well in damp places and at low temperatures.

Microbial - Referring to microscopic forms of life.

Microbiology - A branch of biology dealing especially with microscopic forms of life.

Microorganisms - A form of life that can only be seen with the aid of a microscope, such as bacteria, fungi, molds, parasites, viruses and yeasts.

Pathogen - Any disease-causing agent, usually a living micro-organism.

Proliferate - To grow by rapid production of new cells.

Salmonella - Facultative, non-spore-forming bacterium that is found in poultry, shell eggs, and humans, among other sources. It causes salmonellosis foodborne infection.

Sanitation - The creation and maintenance of conditions favorable to good health.

Sanitization - The reduction of the number of disease causing micro-organisms to safe levels on food contact surfaces.

Sous Vide - A method of packaging raw or partially cooked food, where the product is placed in a sealed pouch and the air removed. The pouch is cooked and refrigerated or frozen until needed, and then reheated and served.

Staphylococcus Aereus - Facultative bacterium that excretes heat-stable toxins to cause a foodborne intoxication; humans are the main reservoir.

Toxin - A poison; specifically, a poison produced by a living micro-organism.

Assumptions

Ideological.

This study will obtain information from two primary target groups. Information obtained before this study will show that deficiencies do in fact exist. Although scientific and regulatory advances have been made to detect and characterize many food-associated risks, there has been little progress made in improving public understanding.

Procedural.

This study will be utilizing audit scores and questionnaires assessing participants' perception of the usefulness of each area tested. All test groups will be randomly divided into two specific groupings to avoid potential bias situations.

Scope and Limitations

It is to be hoped that by utilizing a certified sanitation program a facility will have successful results. This is opposed to not being certified. Time and cooperation of the facility staff will be considerations in determining the amount of information that will be obtained.

Chapter II

Review of Literature

Topics discussed in this literature review include statistics from site inspections, pre/post tests and attitude surveys. Trade and industry publications were found from the Libraries of Rochester Institute of Technology and Montclair University. From these publications, investigations of competency standards and certification requirements for food service employees were analyzed for this review. Interviews and telephone conversations from government officials also used for this review. The contacted officials were from the Food and Drug Administration, the Educational Testing Service, the Food Marketing Institute, and the National Restaurant Association.

Review of Literature

Since the early 1970's, government, state and local health officials have made significant strides in establishing guidelines to reduce the risk of foodborne illness. The objective is to provide the correct education and training to all levels of food service personnel, and to reduce risk by increasing knowledge.

Prior to this time, the emphasis was placed on product knowledge, for example, how to tell good meat or fish from spoiled meat or fish. Public health officials and food service administrators now have been focusing their efforts on finding out what each individual has already learned with respect to the prevention of foodborne illness, regardless of where they receive training (Educational Testing Service, 1995).

Additionally, organizations, such as the Educational Testing Service, the Food Marketing Institute, and the Educational Foundation of the National Restaurant Association, have directed their efforts to understand the needs of the food service, retail food store and vending industries.

Americans are now eating outside of their home more today than ever before. Nearly half of every food dollar - .43 cents - is spent on meals eaten away from home, a rise of four cents over the last decade, according to the National Restaurant Association. And according to the Centers for Disease Control (CDC), 80 percent of food-poisoning outbreaks reported between 1973 and 1987 (which are the most recent statistics available) occurred outside the home.

Changes in farm practices, the environment and lifestyle, as well as in food processing, distribution and consumption, are all related to food-poisoning outbreaks. One major change has been the increase in available food products. In the 1950's, a typical grocery stocked about 300 items; currently, supermarkets stock roughly 30,000 items (Hunter, 1995). Keeping a wide variety of such products adds a large burden to the system of food safety. A typical foodborne outbreak in the 1950's might have been from a batch of homemade tuna salad, laced with salmonella and infecting a group of people at a local fair. Today, that same tuna salad could be mass-produced from a factory and sent all over the country, possibly infecting thousands of people!

With the rise of two-income families in America, fewer people have time to prepare meals at home. To meet consumer demand, the types of foods served in eating establishments have changed. Previously, many cooked foods such as soups and stews

were offered on a limited menu. Currently many offerings are cold foods, including raw vegetables and fruits, which require extensive handling by preparers, with greater possibilities for transmission of contaminants.

Farming has experienced radical changes, and with these changes come methods that increase foodborne illness risks. One of the methods that has come under severe scrutiny involves the use of antibiotics with farm animals. As a result, many *Salmonella* strains directly responsible for food poisoning have become resistant to antibiotics. Approximately 90 percent of all foodborne illnesses can be transmitted from animals to humans, according to John Schmitz, head of the Department of Veterinary Sciences at the University of Nebraska at Lincoln. In most cases, a few animals harbor the pathogens and become the sources of contamination that reach other animals. With current practices of intense breeding, as many as 100,000 cattle may share one feed lot, or thousands of chickens may be crowded into one area (Hunter, 1995). With this type of feeding system the odds of a few animals infecting the whole herd or flock are very high! Food contamination may occur in slaughtering and storing foods. Defeathering machines pound any contamination present into the carcasses of chickens while pressing feces out of their bodies. Microbial spray may land on nearby carcasses as well as on workers and on processing areas, spreading contamination further (Hunter, 1995).

Consumers desire fresh-looking, appetizing, "unprocessed-as-possible" foods, which has led to the development of perishable, refrigerated, "fresh" foods. Packaging techniques have been created to keep foods "fresh" and extend their shelf life.

Some of these techniques are vacuum packaging, sous vide and both modified and controlled atmosphere packagings (Hunter, 1995). These techniques may extend shelf life, but increase risks of foodborne illness.

Restaurants are also responsible for many foodborne illness outbreaks. Restaurant workers may be poorly trained in food safety, due to high turnover. A worker could have a small infected wound on their finger that goes unnoticed, and be the culprit for infecting a patron who is dining at that particular restaurant. To quote Julia Child, "it is so beautifully arranged on the plate, you know someone's fingers have been all over it." The popularity of salad bars has grown in recent years and with it, greater use of entree salads based on meat, poultry, pasta, potatoes, and soy-based protein products. Salad bar items play great host for harboring toxins that thrive under hot food lights. These salad bar items are usually out under these lights for long periods of time where bacteria thrive and grow rapidly. The toxin staphylococcus aureus, is known to grow nicely in this type of food setting. Studies show, for instance, after 24 hours, this toxin was found in all salad dressings examined from salad bars (Kurtzweil, 1995).

A foodborne illness is a disease that is carried or transmitted to human beings by food (National Restaurant Association Educational Foundation, 1992). An estimated 24 to 81 million people in the United States become ill from microorganisms in food. Estimates of death from these illness range from 525 to 7,000 annually (Kurtzweil, 1995). Bacterial pathogens accounted for 87 percent of the cases of foodborne illness reported to the Centers for Disease Control and Prevention between 1973 and 1987; in particular,

there was an alarming rise in illness due to Salmonella during that period (Speer and Kane, 1990).

The widespread occurrence of food-related pathogens in the environment and ability of some to proliferate in refrigeration and/or reduced oxygen atmospheres demonstrate the seriousness of the potential hazards (Oblinger, 1988). The number of reported cases, severity of illness, and incidences of fatality indicate that microbiological contamination by pathogenic organisms such as *E. coli* is a great threat to public health (Speer and Kane, 1990). Of the estimated 24 to 81 million foodborne intoxications and infections, all but 3 percent are believed to come from improper food handling and originate in food service establishments and consumers' homes (Oblinger, 1988). Bacteria-related foodborne illnesses are the most common and preventable. Although scientific advances have been made to detect and characterize many toxins, there has been minimal steps taken to improving public understanding. Given the severity of this problem, one the many measures used to reduce foodborne illness is a certification training program.

Certification is designed to measure the knowledge of individuals who have on-site responsibility for preventing foodborne illness (Educational Testing Service, 1995). According to Arthur Banks, Retail Food Protection Branch, Center for Food Protection and Applied Nutrition of the USFDA, "The Food Protection Certification Test is intended to be a valid job-related test providing decision-makers with food management responsibility that can meet uniform standards to protect the public from foodborne illness." An individual who has been certified in a sanitation program must demonstrate a minimum level of knowledge regarding how to (1) protect against foodborne illness, (2)

detect breaches in a protection plan, and (3) take appropriate corrective action when a breach occurs. The certification test was developed by a committee of sanitarians, food protection agencies, and other specialists in the field of food safety, to provide a program that, when practiced correctly, can reduce the risk of accidents arising in a food service environment. A shortage of food service personnel trained and motivated to follow safe food practices makes the responsibility of food safety management difficult. However, an effective aid to the manager is the Standardized Food Certification program which is designed to improve food safety. The certification program is a common base of knowledge and understanding in sanitation and food protection for any individual who is employed as a food handler. By at least requiring a food service manager to be initially trained, inserviced, and tested in food safety, the environmental health specialist and the food service manager can collectively work as a team to meet standards of code compliance in a food service establishment. There are several arguments for certification: the percentage of foodborne disease outbreaks attributed to foods consumed in a food service establishment has grown from 39 percent between 1968 and 1976 to 47 percent between 1980 and 1982 (Speer and Kane, 1990). With drastic reductions in funding for state inspections, and the increase in food service establishments, conditions for foodborne illness could be magnified unless a more effective sanitation management system is introduced.

Certification is mandatory in several states and requires varying amounts of classroom training and the passing of a state examination, which differs from state to state. The food service industry and public health authorities recognize that a competent

manager is a vital key in protecting the public from foodborne illness. It is management's responsibility, whether it be an owner, operator, or supervisor, to determine sanitation practices in an establishment. The certification process was developed to improve management's knowledge of food sanitation, while stressing the need to train and supervise employees in food handling to protect the consumer from foodborne outbreaks. An example of a certification test is included in Appendix B.

The initial goal of the process was to establish minimum national standards for certification. As early as 1977, a food service manager was encouraged to have at least 15 contact hours of training in the following subject areas: food, foodborne diseases and food protection, facilities sanitary requirements, cleaning/sanitizing, non-food supplies and physical building construction, food handlers personal hygiene and food handling practices, codes-regulations and inspection reports, and management self-inspection, motivation and personnel training (NRA Educational Foundation, 1992).

Sanitation is the creation and maintenance of healthful or hygienic conditions (NRA Educational Foundation, 1992). Sanitation comes from the Latin word "sanitas," meaning health. In a food service situation, the word "sanitation" means wholesome food, handled and prepared in a way that the food is not contaminated with disease-causing agents (NRA Educational Foundation, 1992). Contrary to what many think, individuals pose the major risk to safe food. The success of a food service manager in dealing with a foodborne-illness problem depends on how the human factor is handled. Management must inservice, train, reinforce, and monitor fundamental food service principles.

To be effective, sanitation should be promoted both internally and externally. To effectively market sanitation to employees, management must help them realize its importance. Many corporate chains provide quality examples by ensuring that sanitation is made a priority from the president of a company on down to the front-line worker. It is the attitude of all employees in an operation that will cause the success or failure of an operation's sanitation program. At Heinz USA in Pittsburgh, for example, the company incorporates the use of Hazard Analysis Critical Control Point, (HACCP), a food safety system that focuses on preventing foodborne hazards that can cause illness. Heinz is one of a number of U. S. food manufacturers that adopted HACCP within the last five years. The National Food Processors Association estimates that about half of its three hundred member processors use some form of HACCP in their operations (Kurtzweil, 1995). More organizations are slated to join them. In August 1994, the FDA announced that it was considering whether to make HACCP mandatory for much of the U. S. food supply. (Kurtzweil, 1995). FDA already requires HACCP for the low-acid canned food industry and has proposed it for the seafood industry. Also, the FDA incorporated HACCP into its 1994 Food Code. The Food Code is FDA's guidance and recommendations to state and territorial agencies that license and inspect retail food establishments in the United States and can serve as a model for them (Kurtzweil, 1995). The U. S. Department of Agriculture has announced it will propose HACCP for the meat and poultry industry.

The USDA regulates meat and poultry industry; the FDA all other foods. "The system - though it is simple and based on common sense - signals one of the broadest food safety policy shifts in the last 50 years," says FDA Commissioner David A. Kessler, M.D.

Traditionally, industry regulators have developed on spot-checks of manufacturing conditions and random sampling of final products to ensure safe food. This system is seen as more reactive than preventive because it finds problems after they have occurred rather than as the food is being prepared. HACCP focuses on problem prevention. Companies analyze their food production processes and determine the "critical control points." These are the points in a food's production - from its raw state through processing and shipping to consumption by the consumer - at which hazards can be prevented, controlled or eliminated. (An example of an HACCP Flow Chart is included in Appendix C.) HACCP is the sanitation program most widely endorsed by both national and international organizations, including the National Advisory Committee on Microbiological Criteria for foods. This includes government and non-government food safety experts, and the Codex Alimentarius Commission, an international food standard-setting organization. HACCP, is viewed favorably because of its potential to help the U.S. and other countries cope with new food safety challenges. Among the challenges most often is an increase in the number of human disease outbreaks due to foodborne microbial pathogens. For example, between 1973 and 1988, bacteria not previously recognized as important causes of foodborne illness in the United States - such as *Escherichia coli*, *Listeria monocytogenes*, and *Salmonella enteritis* - became more widespread (Kurtzweil, 1995).

Chemical contamination, such as lead poisoning, has also created concern on the effects to the nervous system. Other problems include processing and packaging systems designed to prolong shelf life may introduce new safety risks; also, the increasing size of the U. S. food industry - both in the amount of domestic food manufactured and the

number and kinds of foods imported. The FDA now lists over 30,000 food manufacturers and processors and more than 20,000 food warehouses in its inventory, and in 1992 alone dealt with 1 million imported food items (Kurtzweil, 1995). The FDA and state and local agencies face severe resource constraints that make it increasingly difficult to ensure food safety. At the Heinz plant in Pittsburgh, company officials have discovered another advantage: a potential savings to the company. According to Ed Sonnet, technical operations consultant for Heinz USA, the HACCP system has led to a drop in the number of stock cases at the company's Pittsburgh plant. These are cases of food that are withheld from the market because of poor quality or safety concerns. "We have a very strong feeling in our minds that HACCP is doing a good job for us," he said. "We think we'll be able to quantify it a lot better when we go into our other plants." With these results a strong sanitation program is a necessary part of any food service operation.

The legal fees, medical claims, lost wages, and loss of business associated with foodborne illness can be devastating. The National Restaurant Association estimates that an average outbreak can cost an implicated operation in the neighborhood of \$75,000. Additionally, clean up costs, and the cost of food loss must be considered. If a customer does become ill from negligence of a facility, the injured person in all probability will stay away from that facility. Some say that a disgruntled customer tells up to nine other people of their discontent with their visit to the place of business. Today, consumers are very willing to sue an operation to seek compensation for products that have caused them harm. The annual cost of foodborne illness in the United States is estimated to be between \$7.7 and \$23 billion! The Uniform Commercial Code (UCC) provides an option to people

who want compensation for illness or injury from unsafe food products. People that sue must, however, prove that the food was unfit, that it caused them harm, and that, in serving them unfit food, the operator violated the warranty of sale.

If an operation is sued, two types of damages can be rewarded to the plaintiff. Compensatory damages are rewarded to the plaintiff. Compensatory damages are awarded for the lost work, lost wages, and medical bills that the plaintiff might have experienced. Punitive damages are awarded in excess of normal compensation; they are awarded to punish the defendant for wanton and willful neglect (NRA Educational Foundation, 1992).

For more than 400 residents of Washington state, a trip to the local Jack-in-the-Box hamburger restaurant turned into a horror show: severe stomach pains, bloody diarrhea, in some of the cases kidney failure. Many of the victims, mostly children, were in the hospital for several weeks! Three people eventually died! The culprit was a virulent strain of bacterium, *Escherichia coli*. This particular germ lives in the bowels of cattle, where in most cases it stays. On November 3, when a batch of cattle was being slaughtered at a California meat-packing plant for processing into frozen hamburger patties, some of the animals intestines ruptured or were cut by butchering knives. The *E. coli* spilled out, mixing with the ground meat that was about to be shipped to Jack-in-the-box food restaurants in Washington State. By mid-January, doctors in the area began to see a receive a steady flow of seriously ill children. Children, along with the elderly are particularly vulnerable to *E. coli*.

Customers blamed the restaurant chain, and abandoned it. Jack-in- the-Box, blamed state officials for not informing the company of new requirements for higher grill temperatures that probably would have killed the bacteria. They also blamed the meat supplier as well. By early February of that year all involved blamed the federal government. American meat-inspection practices have been in place for nearly a century. However, these inspections really do very little in actually discovering any problems with meat; if it looks right and smells right, it passes; however, these examinations are not effective in bacteria detecting.

Wawa Inc., a chain of 514 stores, based in Wawa, Pennsylvania., is the first convenience store chain to have 100% of its units participating in the Industry Council on Food Safety, which means every store has at least one manager on staff trained and certified in the Servesafe program of the Educational Foundation of the National Restaurant Association. "If you don't train people properly and explain why they have to do things in a certain way, you are at risk," said Ted Andrews, manager of quality assurance for Wawa Inc. "By having people certified, it gives you two tools - a training tool and it also helps if you have to go to court. We are committed to certifying all of our managers and assistants in food safety so that we meet our high standards and assure our customers a safe, quality product." Servesafe certification is awarded to individuals who complete the Servesafe Serving Safe Food course. The program is accepted in more than 95% of all regulatory jurisdictions that require manager training and/or testing (Carlin, 1996). States, counties or municipalities can require certification.

After all of a company's managers are trained and certified in the Servesafe program, food service operations are eligible to participate in the Industry Council on Food Safety (Carlin, 1996). The council consists of all segments of the food service industry, from independent operators to major food suppliers. The council is directing a national food-safety awareness campaign to emphasize the prevention of foodborne illness. Wawa gives the course to supervisors, on down to assistant managers in training. The curriculum covers safety procedures, causes, and symptoms of foodborne illness (Carlin, 1996).

There is a great need to determine the level of sanitation education and awareness in the United States. With stories of foodborne outbreak at epidemic levels in this day and technological age, there must be method in place to properly instruct any individual who walks into a kitchen to be thoroughly inserviced in sanitation training.

The best and probably most effective way to prevent foodborne illness is training those on the food lines in a HACCP program. The HACCP system was first developed by The Pillsbury Company in 1971 for the National Aeronautics and Space Administration (NASA) to make sure the food served to the astronauts in outer space was absolutely safe (NRA Educational Foundation, 1992). The HACCP system of self-regulation is becoming more common in the food service industry. A HACCP system allows an establishment to evaluate its operation, locate possible points of contamination, determine the severity of a hazard, and take preventive measures to protect against a foodborne illness outbreak. Self-inspection and training help ensure that the correct steps are being followed, and that safety and quality are maintained (NRA Educational Foundation, 1992).

HACCP is a scientifically-based management system for food safety. It stresses the process of food handling, rather than focusing on the facilities and (NRA Educational Foundation, 1992). To implement the system, an operator must be able to set priorities for the existing hazards according to their severity and risk. Controls must then be set up at each step of food preparation. By creating a flowchart indicating critical control points, and by designing standardized procedures to ensure that all employees are trained in the HACCP system, operators must set the system in motion (NRA Educational Foundation, 1992).

Chapter III

Procedures

Procedures

The subjects of this study were composed of food service employees and managers. Various sources such as the American Dietetic Association, city telephone books and the Mobil Travel Guide were utilized to identify the total study population covering institutions ranging from school, military bases and small resorts to nursing homes and hospitals. Of this total population, 180 institutions in North America were randomly selected to receive the study survey for this project.

The survey was designed to answer if sanitation certification was a valid process for ensuring a more sanitary kitchen environment. The survey consisted of several demographic questions and a core of specific questions relating to the significance of certification. These core questions were further broken down into two areas; the proficiency variable and the frequency variable. The independent variable was the food service sanitation process. The dependent variable was the results of each test given and how they are measured. The intervening variable was staff turnover rate, long-term compliance with food service policies and frequency of monitoring. The objective of the questions was to identify specific reasons why management chose certain methods and techniques of training and monitoring sanitation practices.

Specifically, the survey asked questions on 1) whether the operation was self-operated or contracted, 2) in what type of facility the department was located, and 3) how many years the facility had been operating. Questions four through eight asked for the

number of full- and part-time staff as well as what special facilities were offered in the operation. Questions nine through eleven asked if there was a mandatory or voluntary certification process for both employees and management. Questions twelve through fifteen asked how certification is renewed and who develops and delivers training material. Questions sixteen through nineteen asked which methods were used to determine performance of training before and after an event and also if the department offers incentives for maintaining code compliance. Finally, questions twenty through twenty-two asked if the department was satisfied with its current certification programs. An example of the survey and cover letter are included in Appendix A.

All surveys were addressed to the Directors of Food Service at their respective institutions and mailed via first-class mail in October, 1995. A month was allotted in order to receive an adequate response rate. After the surveys were received, they were analyzed using the Minitab statistical program, which tabulated frequencies and percentages for each question. The raw frequencies and percentages were translated into graphs via the Microsoft Excel spreadsheet program.

Chapter IV

Analysis of Data

Results

The results of the study are presented and discussed in this chapter. From a sample of 180 various establishments, 42 responded for this study. Twenty-nine respondents in question one were self-contracted and 13 respondents were contracted (Table 1).

In response to question two, asking in what type of facility the food department was located, 31 were hospitals, seven were “other”, including resorts and naval bases, three were hotels and one was a restaurant (Table 2).

For question three, addressing how many years the facility had been operating, 35 had facilities operating more than 10 years, five had facilities operating 6-10 years, one for 1-5 years and one for 0-5 years (Table 3).

In response to question four, regarding how many employees were currently working in the department, 23 respondents had more than 40 employees in their departments, ten respondents had 21-40 employees, six had 11-20 employees and three had 0-10 employees (Table 4).

Regarding question five, asking how many full-time (over 37.5 hours per week) employees the department employed, 13 had more than 40 full-time employees, 11 had 21-40 full-time employees, 12 had 11-20 full-time employees and five had 1-10 full-time employees in their department (Table 5).

In question six, which asked how many part-time (under 37.5 hours per week) employees the department had, six respondents replied they had more than 40 part-time employees, 11 respondents replied they had 21-40 part-time employees, four had 11-20 part-time employees and 20 had 1-10 part-time employees (Table 6).

In response to question seven, regarding how many years of food service experience the average worker had, five respondents replied that their average worker had more than ten years of experience, 22 had average employees with 5-10 years of experience, nine had 1-5 years of experience and three had average employees with 0-1 year of experience (Table 7).

For question eight, which asked if the food service operation had any special facilities, 11 respondents indicated they had take-out service available, eight had a private dining room, eight had self-serve and seven had offsite catering facilities (Table 8).

In response to question nine, inquiring if the management of the food service operation required the workers to be certified in any type of sanitation programs, such as Servsafe, 24 respondents answered no, while 17 said yes (Table 9).

Regarding question ten, which asked if the facility had mandatory sanitation certification programs for food service managers, 24 said yes, with the majority of respondents replying that they provide their own in-house programs, and 18 said no, they did not have an existing certification program (Table 10).

In response to question 11, which asked if the facility had a voluntary sanitation certification program for food service managers, 28 said no, ten said yes and two answered that they provided their own individualized programs (Table 10).

For question 12, which inquired by what means the respondents thought certification was best achieved, eight felt that attendance at a formal course was the best method and five believed their own in-house training methods were best. No respondents thought that simply taking an exam was the best method for certification (Table 11).

For to question 13, which asked that, if sanitation certification was mandatory, how often that certification must be renewed, 13 said every three years, seven said annually and five replied every 5 years (Table 12).

In response to question 14, regarding how sanitation certification is renewed, most of the respondents indicated that they go through the process of retaking the course and exam when prescribed.

In response to question 15, asking that if the facility has its own sanitation certification program, who develops and delivers the training material, ten replied the local health department had that role, five said their programs were developed at the corporate level, three had other means, such as the use of managers or supervisors, and two said they received their training material through E.T.S. (Table 13).

For question 16, inquiring if the methods are used to determine change in performance levels as a result of training before and after a training event, 19 said yes while 11 said that no measurement methods are used. Most of the methods utilized included having employees demonstrate their ability by answering questions at the job site about their sanitation training.

In response to question 17, regarding techniques used for reinforcing and maintaining training after a training event, 21 said there was a system used by managers in

place, some through verbal reinforcements and others through spot-checks, while 12 replied that no retention techniques were used.

For question 18, which asked if the department offered any incentives to employees for maintaining a code-compliant facility, 28 said no incentives were used, and 11 said that some incentives, such as dinner for two or employee of the week awards, were utilized.

In response to question 19, asking about the main obstacles to maintaining a staff of certified sanitation personnel in the facility, 13 respondents indicated that high employee turnover was an obstacle, 12 said low employee motivation levels, five said a lack of financial resources and seven answered their obstacles were a combination of no incentives and low employee morale (Table 14).

In response to question 20, inquiring if respondents felt that sanitation certification programs significantly improved food protection practices, 20 agreed that certification did improve practices, 18 strongly agreed, while one respondent disagreed (Table 15).

For question 21, which asked if respondents were satisfied with the current sanitation certification program offer at their facilities, a very positive 22 replied yes, they were satisfied while nine answered no (Table 16).

In response to question 22, which offered an opportunity for respondents to make any additional comments about the usefulness of sanitation certification, most of the respondents believed they would welcome more information regarding their facility towards achieving a more sanitary operation.

Is the food service department you work in:

Table 1

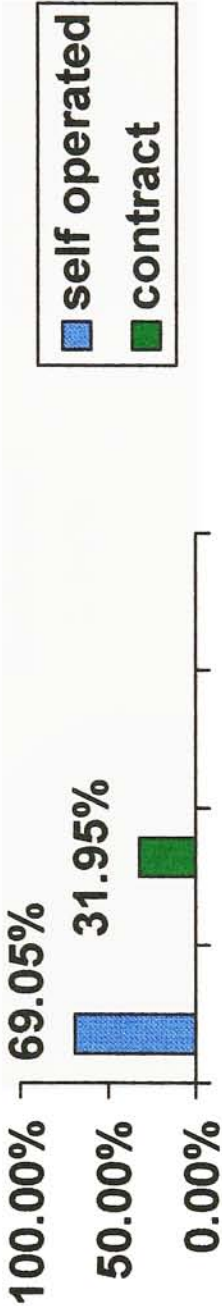


Table 1

In what type of facility is the food department located?

Table 2

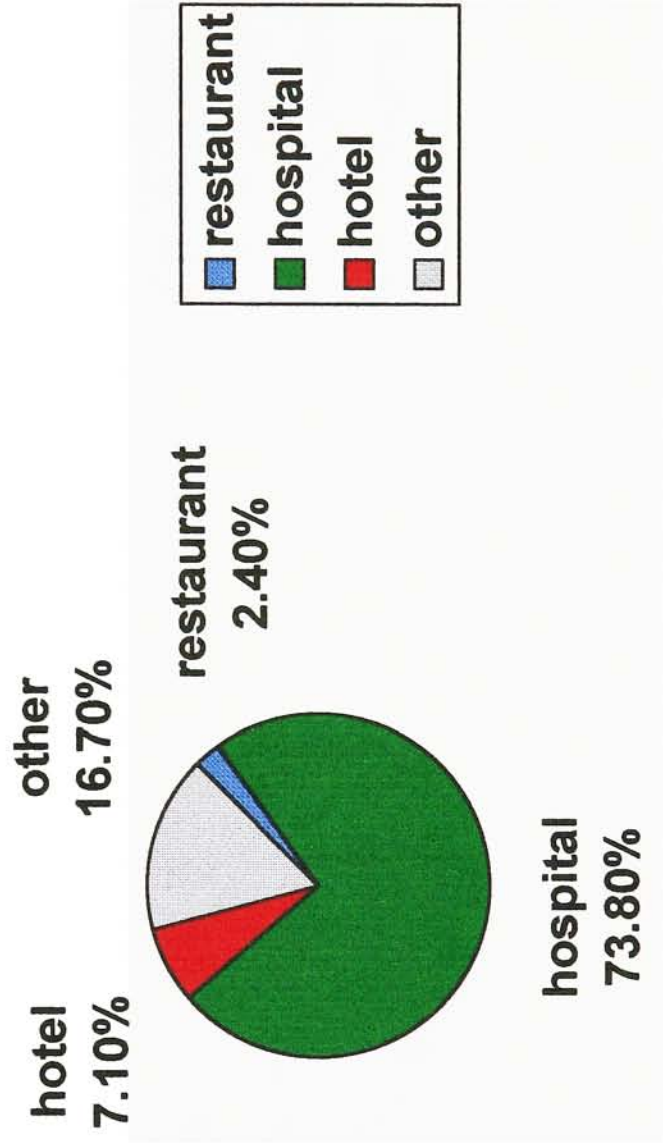


Table 2

How many years has the facility been operating?

Table 3

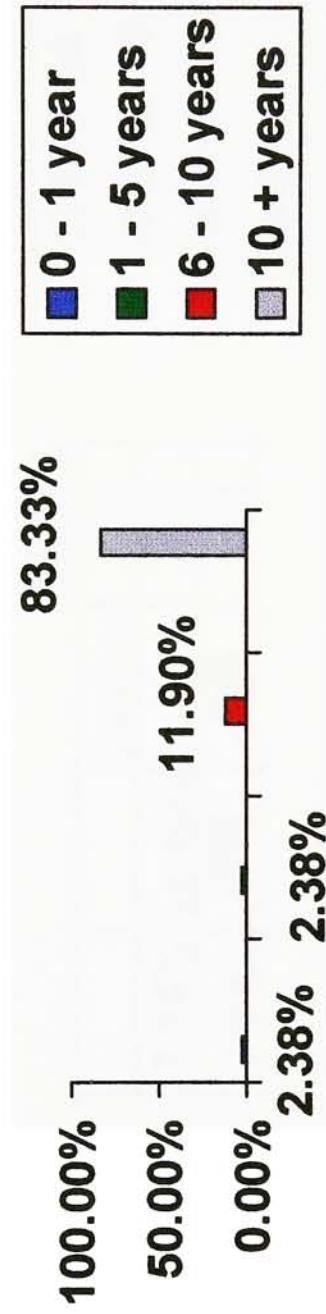


Table 3

How many employees are currently working in the department?

Table 4

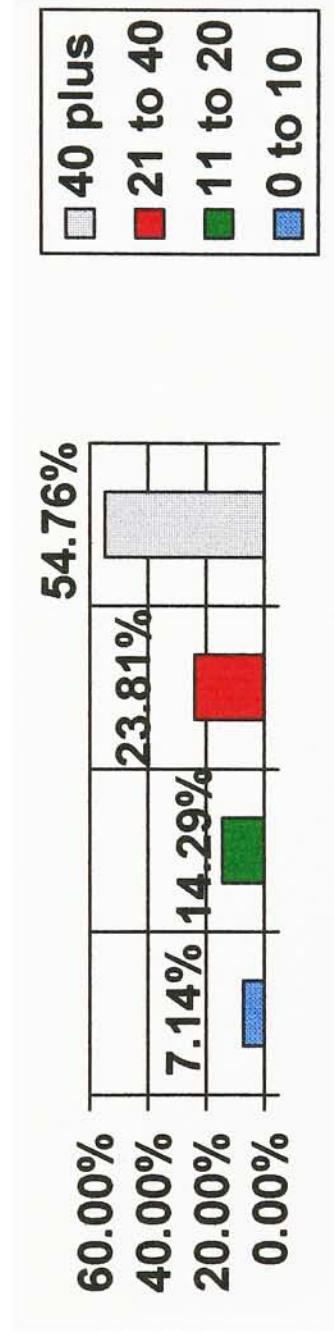


Table 4

How many full time (37.5+ hrs) employees
does the department have?

Table 5

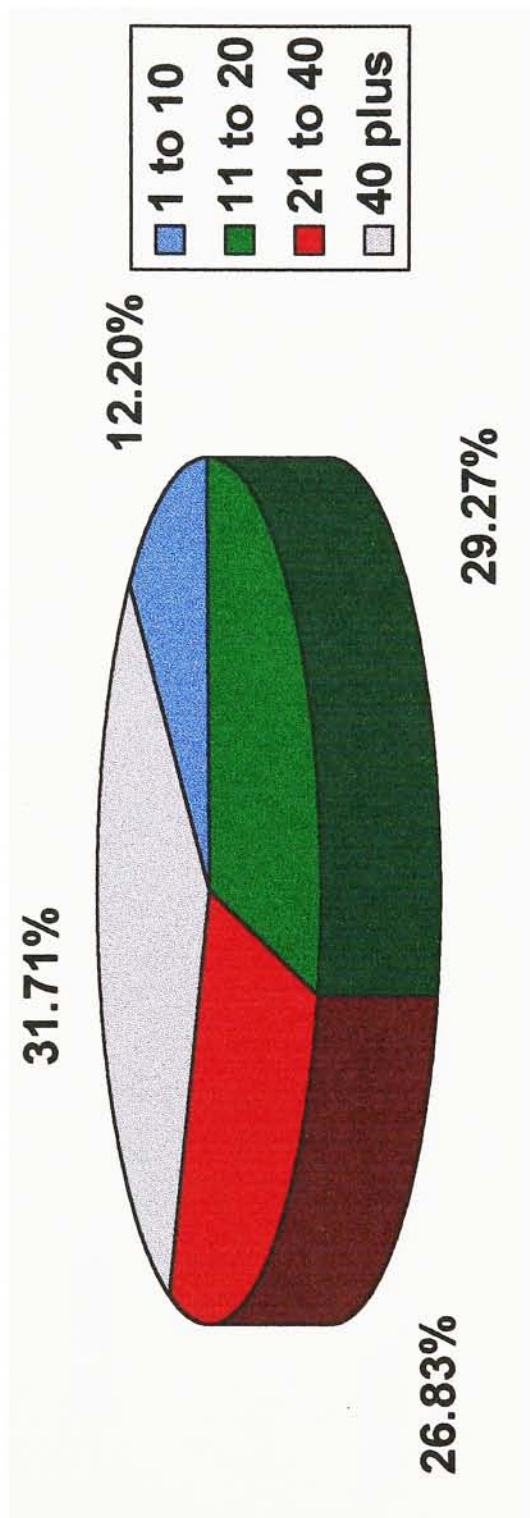


Table 5

How many part time (under 37.5 hrs)
employees does the department have?

Table 6

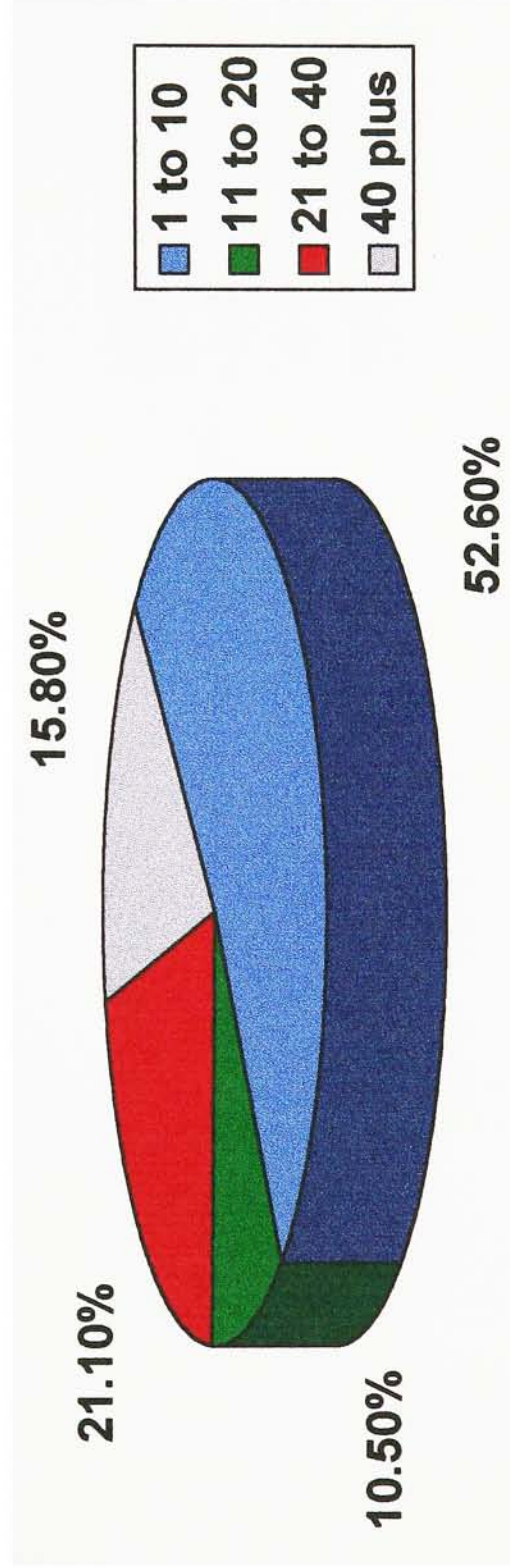


Table 6

How many years of food service experience
does the average worker have?

Table 7

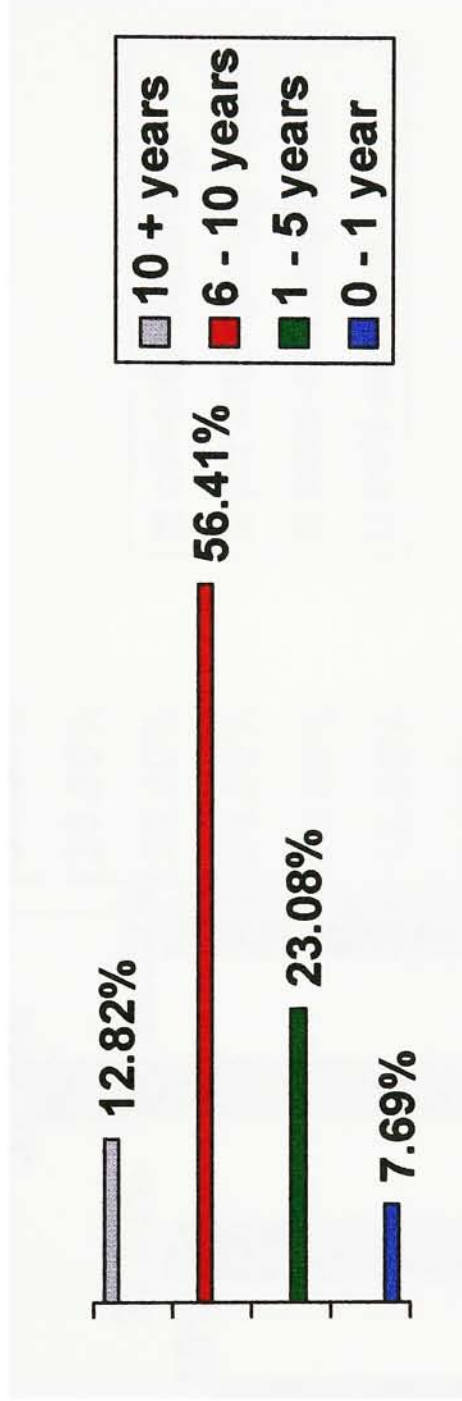
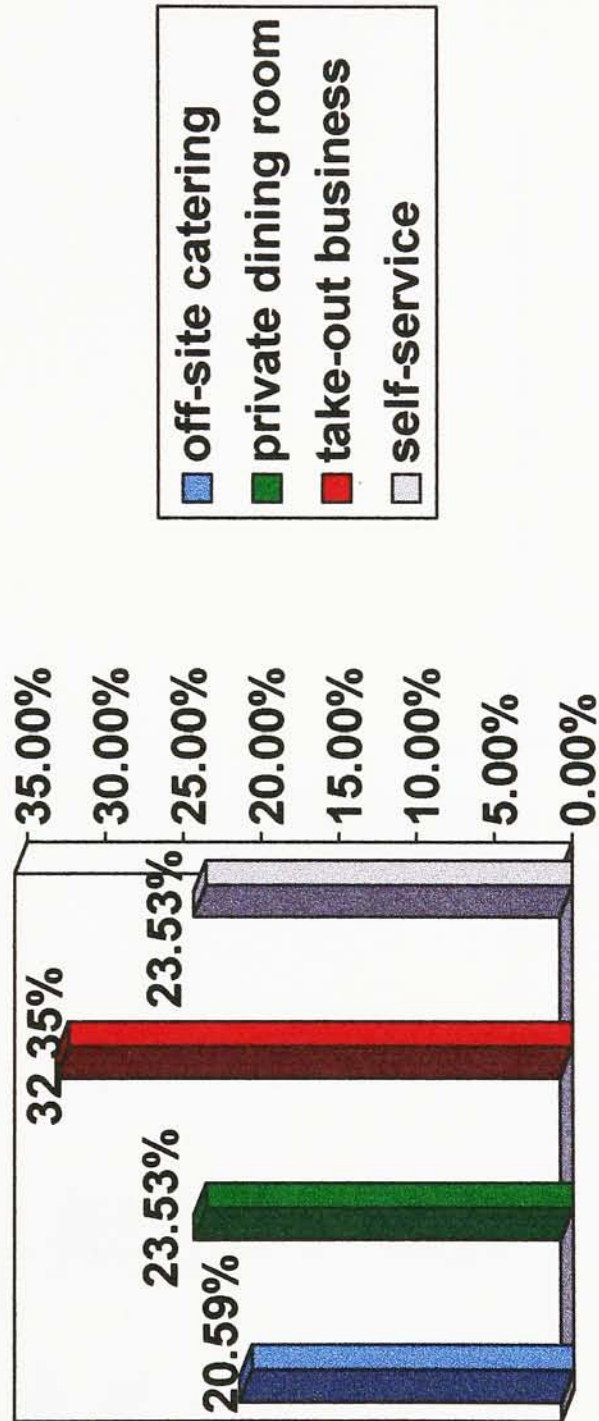


Table 7

Does the facility have special facilities?

Table 8

Table 8



Does the management require the food service workers to be certified in a sanitation program?

Table 9

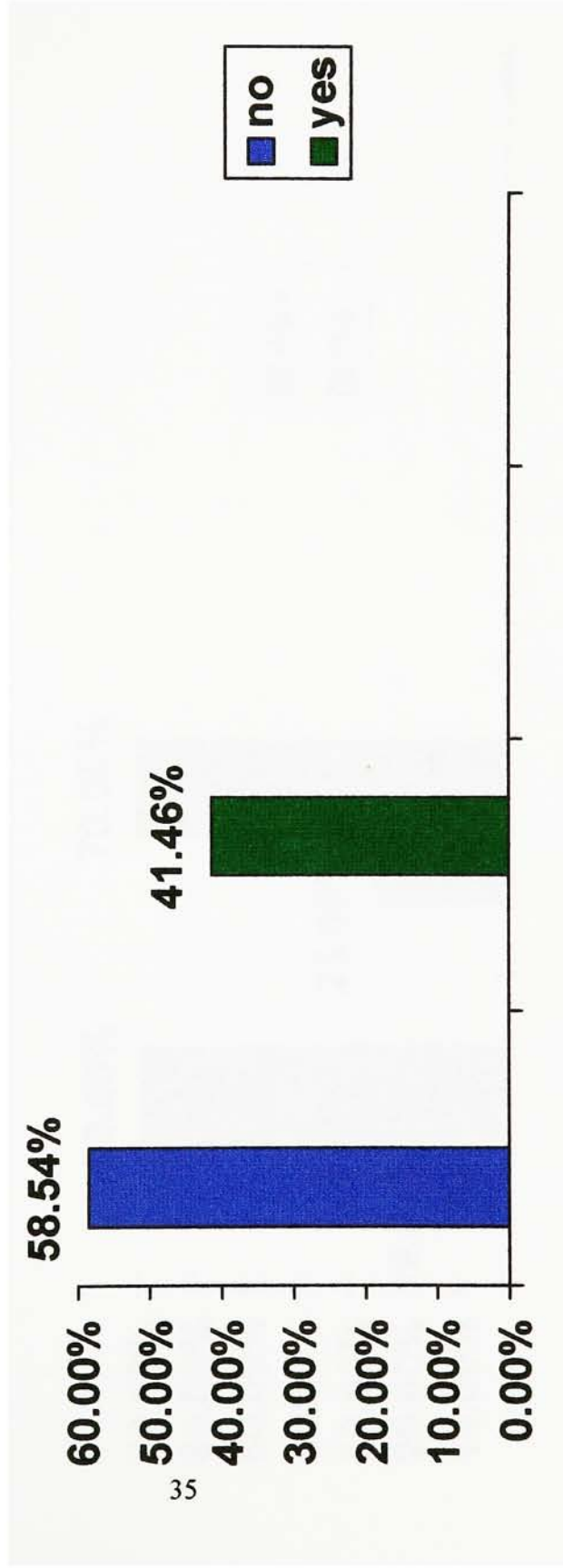
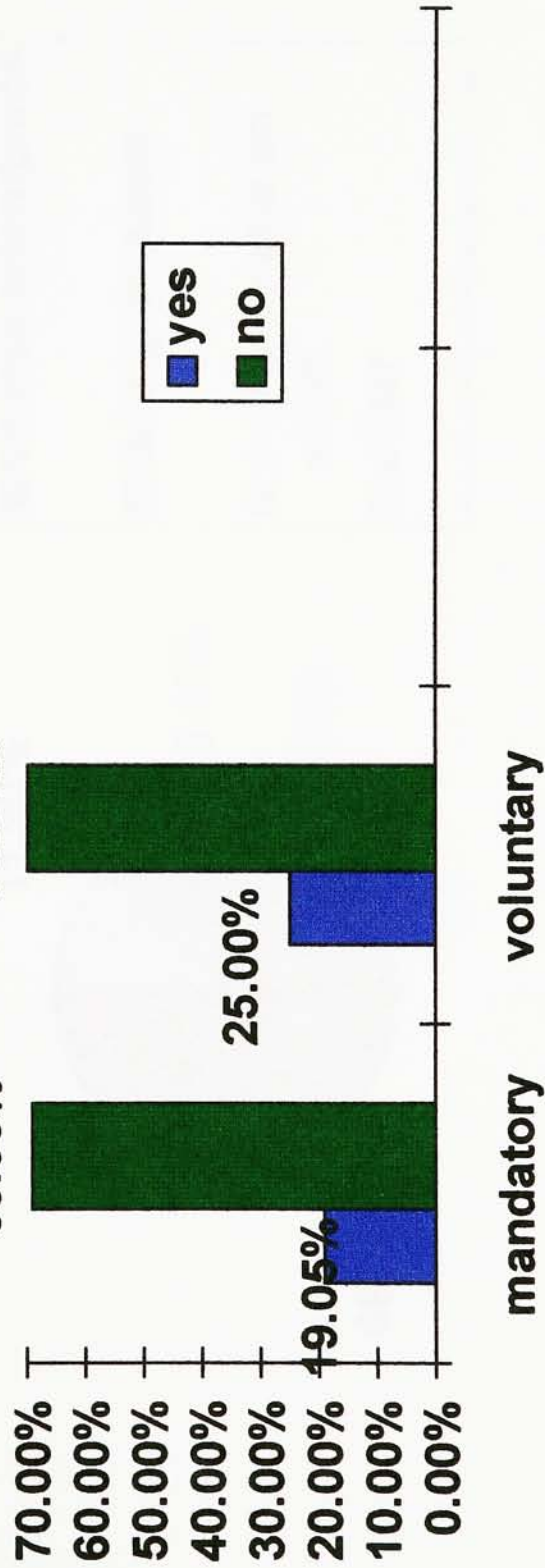


Table 9

Is there a sanitation certification program for food service managers?

Table 10



Do you feel sanitation certification is best achieved by:

Table 11

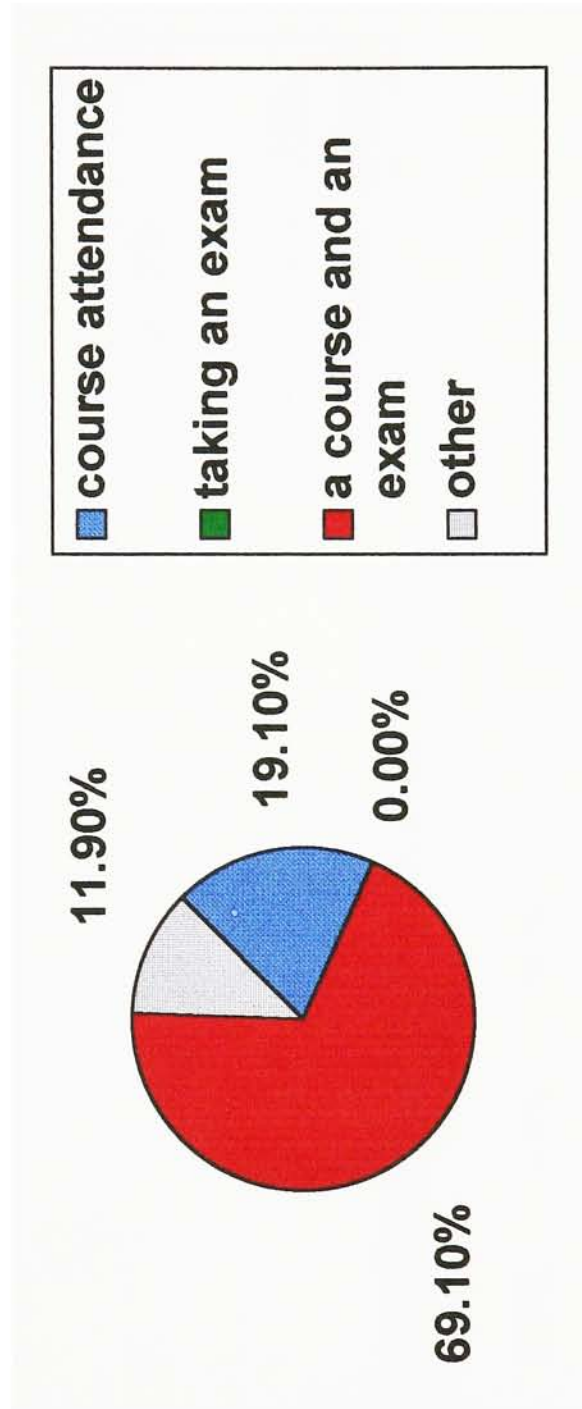


Table 11

If sanitation is mandatory, how often must it be renewed?

Table 12

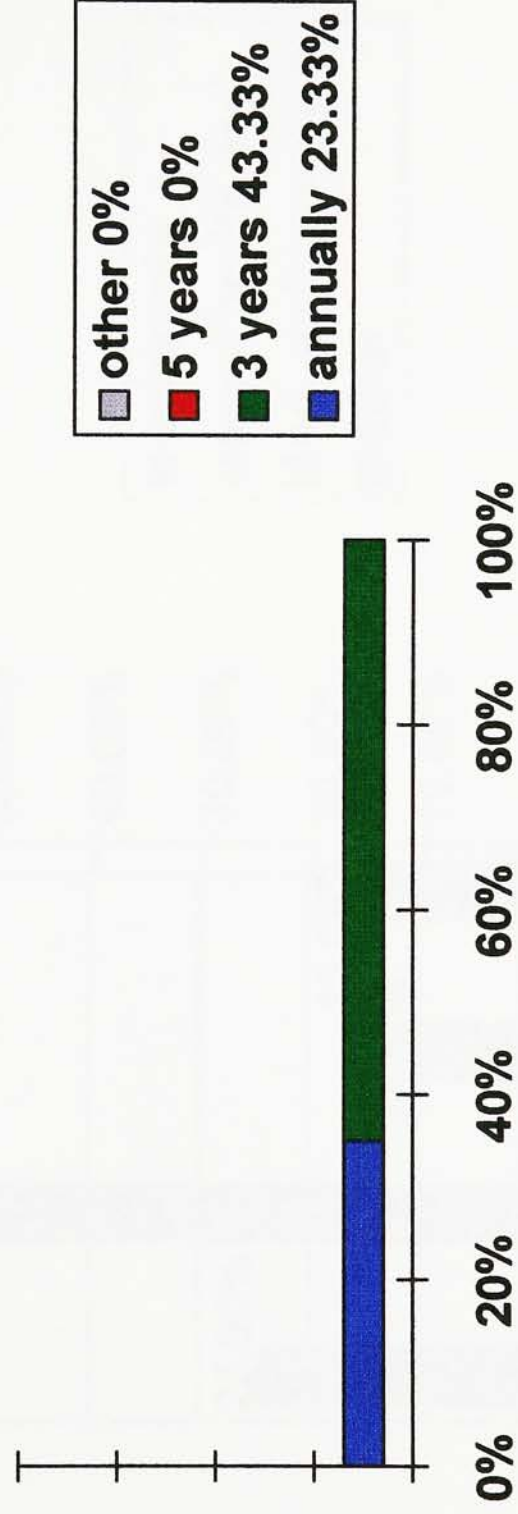


Table 12

Who develops and delivers training material for the sanitation certification program?

Table 13

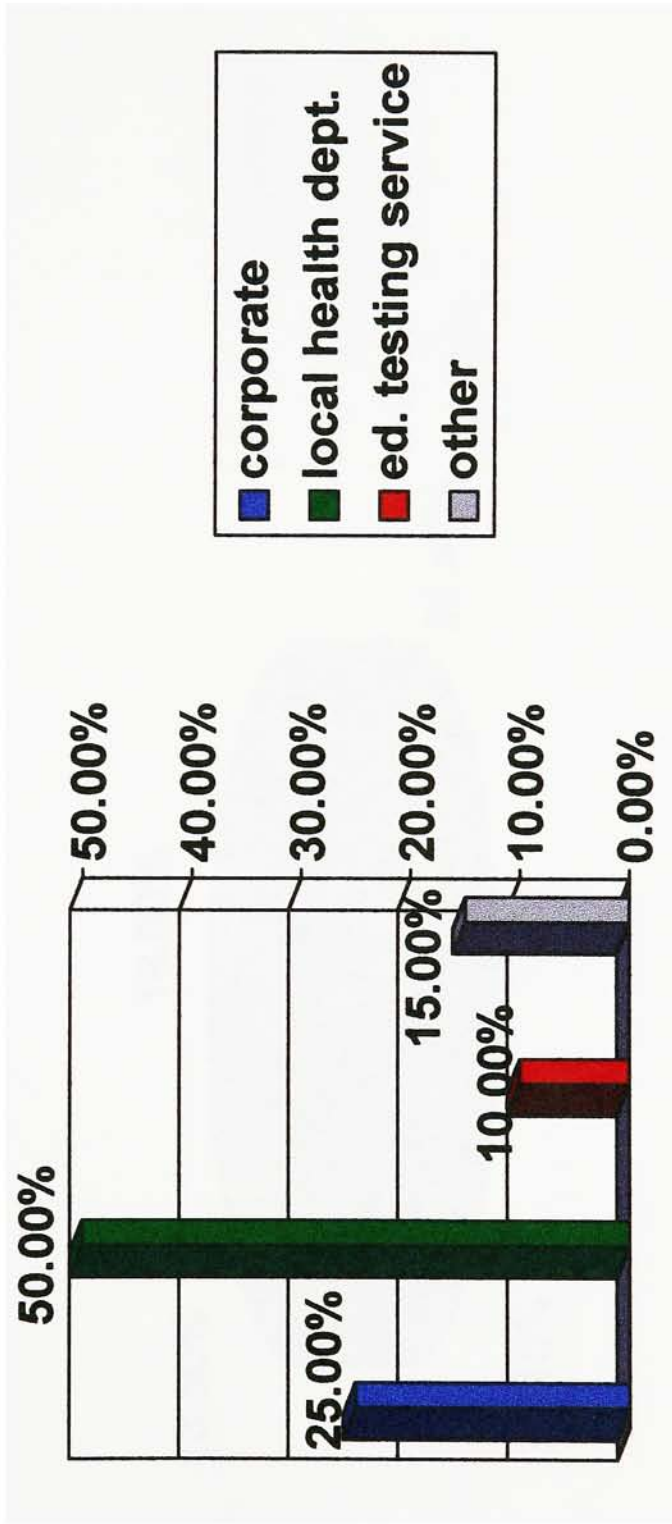


Table 13

What is the main obstacle in maintaining a staff of certified sanitation personnel?

Table 14

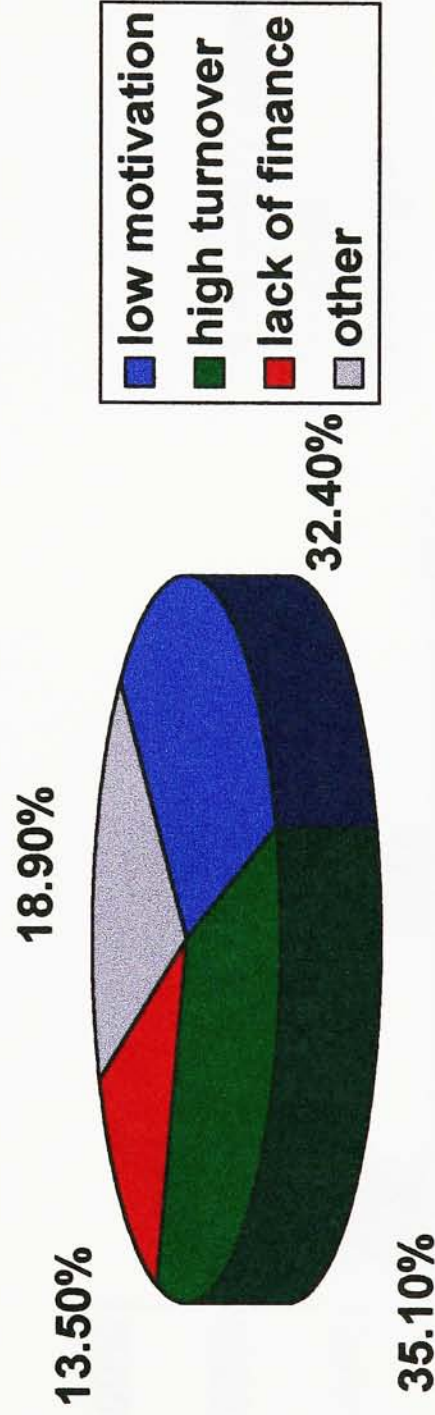


Table 14

Do you feel sanitation certification programs significantly improve sanitation practices?

Table 15

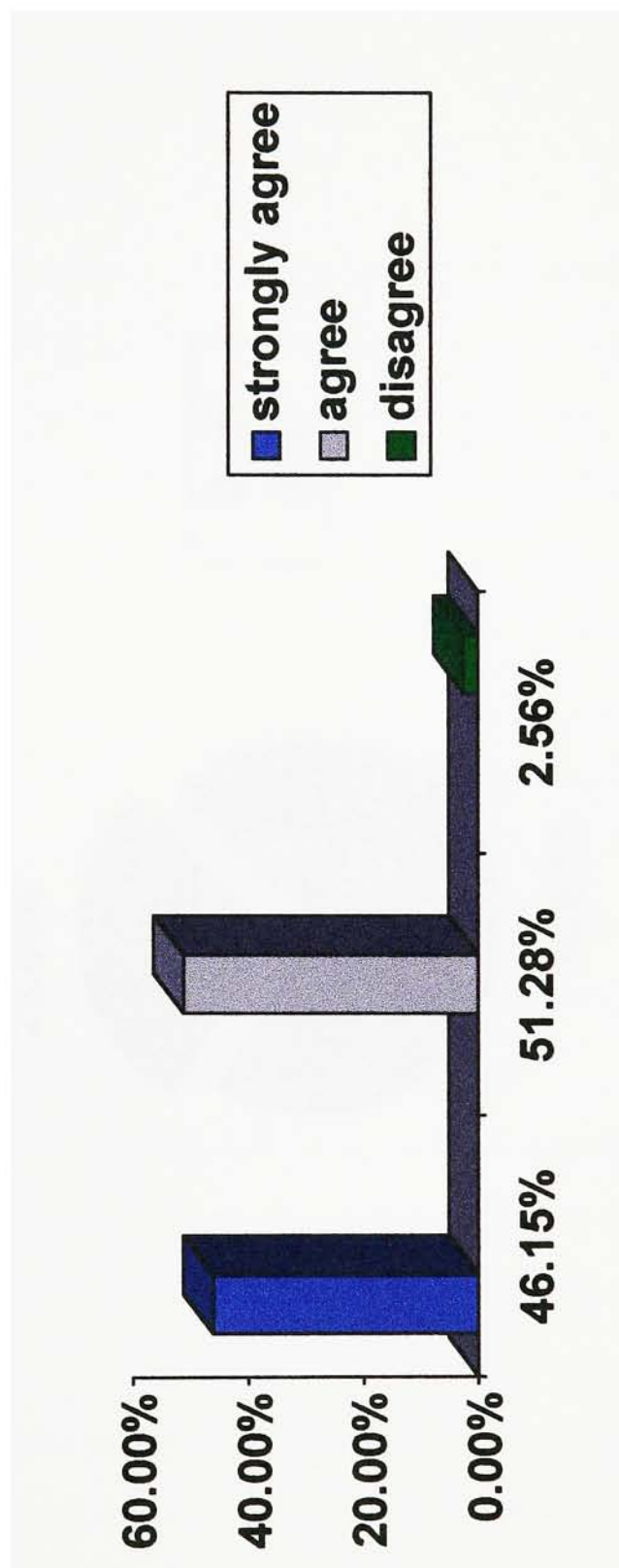


Table 15

Are you satisfied with the current sanitation certification program offered to your facility?

Table 16

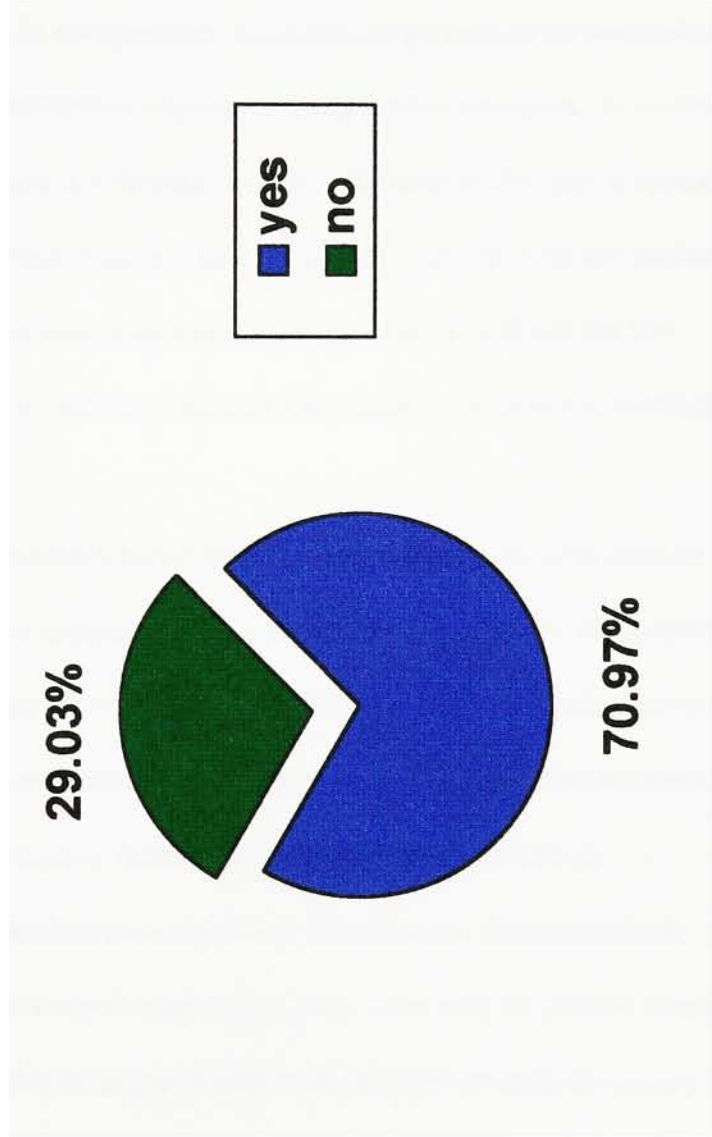


Table 16

Chapter V

Conclusions and Recommendations

Conclusions

From the survey results, in one question, more than 69 percent of the respondents stated they had a mandatory certification program for food service managers. In another question, 70 percent said they have a voluntary program. Because of this gap, it appears that only 41 percent of management required the food service workers to be certified in such a program. The need for sanitation education at every level is vital and the low percentage of employees receiving training indicates a non-effective process of meeting sanitation and safety standards.

Fifty percent of the respondents stated that the local health department delivers and trains sanitation programs as compared to only 25 percent coming from the corporate level. This again indicates a need for stronger presence from within an organization to stress proper sanitation procedures. Weekly in-house training is a more effective means of measuring an employee's performance, rather than an annual sanitation course.

Where mandatory certification was concerned, 43 percent of the respondents stated that certification must be renewed every three years, while only 23 percent reported annual re-certification. Again, this large gap indicates the need for stronger frequency of sanitation inspections.

According to the survey response, management felt the most effective technique used to determine performance of training before and after a training event was by

“inservicing” the material to the employees. The majority of the managers felt they could reinforce and stress the importance of sanitation more effectively in this manner.

An overwhelming 69 percent of the respondents felt sanitation certification was best achieved by taking a course and exam, while 19 percent felt that simply attendance at a course was the best method. Twelve percent felt one-on-one training was the most effective way of achieving certification.

High employee turnover and low motivation were the main obstacles in maintaining a staff of certified sanitation personnel for a facility. Availability of training sites and time availability were other key issues.

Overall, the majority of the respondents felt that sanitation programs significantly improve food protection practices and more than 70 percent were very satisfied with their current programs being offered.

Most respondents stated that they would have fewer inspections as incentives for maintaining a code-compliant facility. Some other incentives reported included employees keeping their jobs and personal pride for maintaining a sanitary kitchen. According to the survey, some managers felt most of the time certification programs weren’t as effective or resulted in little or no improvement, because of the resistance from employees, mainly the cooks.

One respondent complained that he would like to keep his establishment in a sanitary manner, but his staff complained that there was not enough time to do all the cleaning necessary. In this instance, if this establishment wants to remain open for

business, it should seriously consider refocusing its priorities as to what it will take to maintain sanitary compliance.

Some thought should be given to holding weekly meetings with updated sanitation audit reports. By making a conscious effort and stressing to employees the difference they can make in the outcome of inspections will bring the department together as a team. Another incentive would be to offer a “free lunch” to the employee who maintains the most sanitary area based on audit scores throughout a month-long period.

Recommendations

According to the survey results and findings, the following recommendations are given.

1. Management must train and reinforce proper sanitation procedures through the use of weekly in-service sessions using appropriate literature; for example, “Food Handling Guides” and other important tools to enforce food safety.
2. A sanitation audit tool must be utilized and properly maintained on a weekly basis to closely document defects in an operation. This tool will be broken down into different areas of operation, such as dining room and dish room area (Appendix D).
3. Daily cleaning assignments must be delegated from the managers to the employees, leaving the employees accountable for all findings.
4. All pest controls must be in place and serviced by a reputable vendor.

5. A Quality Assurance Tracking Form (Appendix E) will be utilized, focusing on specific aspects of the department. The form will describe the monitoring method, a threshold for evaluation , percentage of accuracy and a corrective action plan.

Maintenance of a code-compliant facility does not have to be a stressful procedure; it can be accomplished through diligent efforts and daily monitoring to educate all staff continuously.

Long Term Consequences

Because the hypothesis of this study was proved to be valid and correct, the long term consequences of this study should include an assessment of the long-term maintenance of the changes recommended above.

In the future, it would also be advantageous to conduct a similar study to determine how reinforcement techniques can be more effective after a training event. For the most part, many of the responses stated that there weren't any type of reinforcement techniques to identify if any improvement occurred as a result of the training event. The importance of identifying improvement after a training event is a vital step to identifying gaps in the training and certification process.

Moreover, every employee in the food service industry is legally and ethically responsible for protecting the health and safety of the customers. The importance of certification in other legally and ethically responsible industries, such as any involved with potentially hazardous materials or products, would be another interesting area for study

and comparison with the food service industry. Examples of such areas would include the health care industry, nuclear energy operations and animal welfare organizations. Possible best practices in the area of employee certification could be revealed in these other industries and recommendations made to adapt those practices into the food service industry.

References

- Bezich, L. (1993, November/December). The Silver Platter Award: Reform in restaurants. Public Health Reports, 797.
- Bryan. (1985, March/April). Procedures for local health agencies to institute a Hazard Analysis Critical Control Point Program for food safety assurance in foodservice operations. Journal of Environmental Health.
- Buckley, J.F. (1987). Oregon schools begin inspection cleanup. Journal of Environmental Health, 36-37.
- Carlin, S. (1996, April). Fear of foodservice. Convenience Store News, 68.
- Cluskey, Messersmith. (1991, October). Status of training programs and perceived labor problems in four types of noncommercial foodservice operations. Journal of the American Dietetic Association, 1239.
- Cook, C.C., Casey R. (1979). Assessment of a foodservice management sanitation course. Journal of Environmental Health, 281-284.
- Educational Testing Service. (1995). Preparing to Take the Food Certification Test. Princeton, New Jersey: Center for Occupation and Professional Assessment.

Eiders, J.R. (1991, October). Sanitation. Food Processing, 162-164.

Giese. (1991, December). Sanitation: The key to food safety and public health. Food Technology, 74-80.

Grogan, D. (1993, February). Rare and deadly. People, 48-50.

Hunter, B.T. (1995, October). Overlooked threats of foodborne illness. Consumers Research, 14.

Kneller, P, Bierma, T. (1990, March). Foodservice certification: Measuring the effectiveness of a state program. Journal of Environmental Health, 292-294.

Kurtzweil, P. (1995, January/February). HACCP: Patrolling for food hazards. FDA Consumer, 10.

Manning. (1994, August). Food safety knowledge and attributes of workers from institutional and temporary foodservice operations. Journal of the American Dietetic Association, 893.

Metts, A., Claire, E., and Rodman, V. (1993, October). A guideline for evaluating the effectiveness of foodservice worker training/certification. Dairy, Food and Environmental Sanitation, 565-567.

National Restaurant Association (NRA) Educational Foundation. (1992) Applied Foodservice Sanitation: A Certification Coursebook. Dubuque, Iowa: Kendall/Hunt Publishing Co.

Newsome. (1995, May). Proposed regulations spur HACCP activities. Food Technology, 32.

Oblinger, J. L. (1988). Bacteria associated with foodborne diseases-a scientific status summary report by the institute of food technologists expert panel on food safety and nutrition. Food Technology, 42,181-200.

Pivarnik, Patnoad, Giddings. (1994, August). A food safety curriculum for second-and-third grade elementary students. Journal of the American Dietetic Association, 865-868.

Robbins, M., McSwane, D. (1994). Sanitation doesn't cost, it pays: Is it true and can we prove it? Journal of Environmental Health, 14-20.

Soneff, R., McGeachy, F., Davidson, K., McCargar, L., Therien, G. (1994). Effectiveness of two training methods to improve the quality of foodservice in small facilities for adult care. Journal of the American Dietetic Association, 94 (8).

Speer, S.C., Kane, B.E. (1990). Certification for food service managers: A study of current opinion. Journal of Food Protection, 269-274.

United States Department of Health and Human Services Public Health Service, Food and Drug Administration, Food Code, (1993).

Weinstein. (1991, June). How to cut the risk. Progressive Grocer, 90-95.

Wright, J., Lindson, F. (1986, July-August). Foodservice manager certification: An evaluation of its impact. Journal of Environmental Health, 12-15.



Rochester Institute of Technology

School of Food, Hotel, and
Travel Management
Department of Graduate Studies
George Eastman Building
Post Office Box 9887
Rochester, New York 14623-0887
716-475-5666 Fax 716-475-5099

September 25, 1995

Dear Food Service Manager:

I am a graduate student from the Rochester Institute of Technology and I am asking for your help in completing a questionnaire which will be sent out this month. Your answers will assist my efforts to complete this project as accurately as possible. Please keep in mind this is not an evaluation of your establishment and you need not sign your name. Your assistance is greatly appreciated.

Thank you.

Sincerely,

Ron S. Manfredo
Director of Food Service
Bateman
JGB-Home for Aged Blind
75 Stratton Street South
Yonkers, New York 10701

RSM:rap

QUESTIONNAIRE SURVEY

(Please place an x next to the appropriate answer)

1. Is the food service department you work in
69.05% self operated
31.95% contracted with a food service company
2. In what type of facility is the food department located
2.40% restaurant 7.10% hotel
73.80% hospital 16.70% other
3. How many years has the facility been operating?
2.38% 0-1 year 11.90% 6-10 years
2.38% 1-5 years 83.33% more than 10 years
4. How many employees are currently working in the department?
7.14% 0-10 23.81% 21-40
14.29% 11-20 54.76% more than 40
5. How many full time (over 37.5/hrs/wk) employees does the department have?
12.20% 1-10 26.83% 21-40
29.27% 11-20 31.71% more than 40
6. How many part time (under 37.5/hrs/wk) employees does the department have?
52.60% 1-10 21.10% 21-40
10.50% 11-20 15.80% more than 40
7. How many years of food service experience does the average worker have?
7.69% 0-1 year 56.41% 5-10 years
23.08% 1-5 years 12.82% more than 10 years
8. Does the facility have special facilities; please indicate where applicable.
20.59% off-site catering 32.53% take-out business
23.53% private dining room 23.53% self-service area
9. Does the management require the food service workers to be certified in any type of sanitation program such as Serve Safe?
58.54% no
41.46% yes
10. Does your facility have a mandatory sanitation certification program for food service managers?
19.05% yes
69.05% no
11. Does your facility have a voluntary sanitation certification program for food service managers?
25.00% yes
70.00% no

12. Do you feel sanitation certification is best achieved by:
- | | | | |
|--------|------------------------|--------|----------------------|
| 19.10% | attendance at a course | 69.10% | a course and an exam |
| 0.00% | taking an exam | 11.90% | other |
13. If sanitation is mandatory, how often must it be renewed?
- | | | | |
|--------|----------|-------|---------|
| 23.33% | annually | 0.00% | 5 years |
| 43.33% | 3 years | 0.00% | other |
14. How is sanitation certification renewed? Please describe
15. If you have a sanitation certification program, who develops and delivers training material?
- | | | | |
|--------|-------------------------|--------|---------------------------|
| 25.00% | corporate | 10.00% | Education Testing Service |
| 50.00% | local health department | 15.00% | other |
16. Are methods used to determine performance of training assessed before and after a training event?
- | | |
|--------|-----|
| 36.67% | no |
| 63.33% | yes |
17. Are techniques used for reinforcing or maintaining training after a training event?
- | | |
|--------|-----|
| 36.36% | no |
| 63.64% | yes |
18. Does the department offer any incentives for maintaining a code-compliant facility?
- | | |
|--------|-----|
| 71.79% | no |
| 28.21% | yes |
19. What is the main obstacle in maintaining a staff of certified sanitation personnel for the facility?
- | | | | |
|--------|------------------------|--------|-------------------------|
| 32.40% | low motivation | 13.50% | lack of \$ for programs |
| 35.10% | high employee turnover | 18.90% | other |
20. Do you feel sanitation certification programs significantly improve food protection practices?
- | | | | |
|--------|----------------|-------|-------------------|
| 46.15% | strongly agree | 2.56% | disagree |
| 51.28% | agree | 0.00% | strongly disagree |
21. Are you satisfied with your current sanitation certification program offered to your facility?
- | | |
|--------|-----|
| 29.03% | no |
| 70.97% | yes |
22. Please give any additional comments about the usefulness of sanitary certification.

(Optional) Respondent Name

Title

FOOD PROTECTION CERTIFICATION PROGRAM

Directions: Each of the questions or incomplete statements below is followed by four suggested answers or completions. Select the one that is best in each case and darken the corresponding space on the answer sheet.

Note: Each of the questions should be answered from the perspective of protecting the public from foodborne illness and not necessarily from the perspective of food quality retention or appearance.

- In which of the following situations did the manager of a food service establishment act correctly?
 - He sent home an employee who was sneezing and had a runny nose.
 - He assigned a salad worker who had diarrhea to the dishwashing room.
 - He provided a clean, dry bandage to a sandwich-maker who had an infected cut on her finger so that she could continue working.
 - He restricted a cook who had an infected burn to the preparation of desserts.
- Which of the following statements about the use of carpeting in a food preparation area is true?
 - It must have padding underneath to prevent slipping.
 - It must be light in color to clearly show spills and dirt.
 - It must be indoor/outdoor carpeting.
 - It must not be used in a food preparation area.
- Between uses on the serving line, a chicken salad scoop should be
 - placed in the food with its handle extended out of the food
 - placed in a container of water
 - wiped with a clean, moist towel and placed on the counter
 - placed directly on the counter
- When a food equipment unit is floor-mounted and elevated on legs, a minimum of 6 inches is required between the floor and the lowest part of the unit for which of the following reasons?
 - To allow proper cleaning of the floor under the unit
 - To promote air circulation under the unit
 - To provide toe space so that an employee may stand close to the unit
 - To provide extra storage space under the unit
- Of the following sanitary precautions that an employee who prepares food may take, which is most important?
 - Removing her jewelry before preparing food
 - Washing her hands before preparing food
 - Wearing plastic gloves while preparing food
 - Wiping her hands on a clean, moist cloth while preparing food
- Of the following, which is the best way to ensure that food served from a steam table is at the proper temperature?
 - Periodically measure the internal (center) temperature of the food with a thermometer and adjust the heat accordingly.
 - Turn the steam table thermostat to its highest setting and leave it there.
 - Replace the line pans on the steam table with pans of freshly prepared food every 15 to 20 minutes.
 - Cover the food on the steam table with steam-table covers when no one is coming through the line.
- Which of the following statements about hand-washing sinks is true?
 - A hand-washing sink should be located in each corner of the food preparation area.
 - A hand-washing sink in a salad preparation area only needs to provide cold water.
 - Refuse containers may be kept in front of hand-washing sinks if the containers are on easy-roll casters.
 - Sinks used for food preparation may not be used as hand-washing sinks.

Appendix C - HACCP Flowchart for Beef Stew

A HACCP flowchart for beef stew **

Critical Control	Hazard	Standards	Corrective Action if Standards not met
Receiving			
Receiving beef	Contamination and spoilage	Accept beef at 45 deg F or lower; verify with thermometer	Reject delivery
		Packaging intact	Reject delivery
		No off odor or stickiness, etc.	Reject delivery
Receiving vegetables	Contamination and spoilage	Packaging intact	Reject delivery
		No cross-contamination from other foods on the truck	Reject delivery
		No signs of rodent activity	Reject delivery
Storage			
Storing raw beef	Cross-contamination of other foods	Store on lower shelf	Move to lower shelf away from other foods
		Label, date and use FIFO rotation	Use first; discard if maximum time is exceeded or suspended
	Bacterial growth and spoilage	Beef temperature must remain below 45 deg F	Discard if time and temperature abused
Storing vegetables	Cross-contamination from raw potentially hazardous foods	Label, date and use FIFO rotation	Discard product held past rotation date
		Keep above raw potentially hazardous foods	Discard contaminated, damaged, or spoiled products
Preparation			
Trimming and cubing beef	Contamination, cross-contamination and bacteria increase	Wash hands	Wash hands
		Clean and sanitize utensils	Wash hands, rinse, and sanitize utensils and cutting board
		Pull and cube one roast at a time, then refrigerate	Return excess amount to refrigerator
Washing and cutting vegetables	Contamination and cross-contamination	Wash hands	Wash hands
		Use clean and sanitized cutting boards, knives, and utensils	Wash hands, rinse, and sanitize utensils and cutting board
		Wash vegetables in clean and sanitized vegetable sink	Clean and sanitize vegetable sink before washing vegetables
Cooking			
Cooking stew	Bacterial survival	Cook all ingredients to minimum internal temperature of 165 deg F	Continue cooking to 165 deg F
		Verify final temperature with a thermometer	Continue cooking to 165 deg F
		Keep covered, stir often	Cover
	Physical contamination during cooking	Add spices early in the cooking procedure	Continue cooking at least 1/2 hour after spices are added
	Contamination by herbs and spices	Measure all spices, flavor enhancers and additives, and read labels carefully	
	Contamination of utensils	Use clean and sanitized utensils	Wash, rinse, and sanitize all utensils before use
	Contamination from cook's hands or mouth	Use proper tasting procedures	Discard product

(CONTINUED)

Critical Control	Hazard	Standards	Corrective Action If Standards not met
Holding and Service			
Hot holding and serving	Contamination, bacterial growth	<ul style="list-style-type: none"> Use clean and sanitary equipment to transfer and hold product Hold stew above 140 deg F in preheated holding unit, stir to maintain even temperature Keep covered Clean and sanitize serving equipment and utensils 	<ul style="list-style-type: none"> Wash, rinse, and sanitize equipment before transferring food product to it Return to stove and re-heat to 165 deg F Cover Wash, rinse, and sanitize serving utensils and equipment
Cooling			
Cooling for storage	Bacterial survival and growth Cross-contamination Bacterial growth in time or after prolonged storage time	<ul style="list-style-type: none"> Cool rapidly in ice water bath and /or shallow pans (<4" deep) Cool rapidly from 140 deg F to 45 deg F in four hours or less Verify final temperature with a thermometer; record temperatures and times before product reaches 45 deg F or less Place on top shelf Cover immediately after cooling Use clean and sanitized pans Do not stack pans Label with date and time 	<ul style="list-style-type: none"> Move to shallow pans Discard, or re-heat to 165 deg F and re-cool one time only If temperature is not reached in less than four hours, discard; or re-heat product to 165 deg F and re-cool one time only Move to top shelf Cover Wash, rinse, and sanitize pans before filling them with product Separate pans by shelves Label with date and time or discard
Re-heating			
Re-heat for service	Survival of bacterial contaminants	<ul style="list-style-type: none"> Heat rapidly on stove or in oven to 165 deg F Maintain temperature at 140 deg F or above ; verify temperature with a thermometer Do not mix new product into old product Do not re-heat or serve leftovers more than once 	<ul style="list-style-type: none"> Re-heat to 165 deg F within two hours Transfer to preheated hot holding unit to maintain 140 deg F or above Discard product Discard product if any remains after being re-heated

** Reproduced from :

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The Educational Foundation of the National Restaurant Association, 1994

Appendix D

MEADOWVIEW HOSPITAL SANITATION CHECKLIST

DATE: _____ SIGNED: _____ TIME: _____

CODE: Y = YES

N = NO

N/A = NOT APPLICABLE

N/O = NOT OBSERVED

EMPLOYEE CAFETERIA

_____ CEILING VENTS	_____ SALAD BAR	_____ ICE MACHINES
_____ WALLS	_____ STEAM TABLE	_____ REFRIGERATORS
_____ WINDOWS	_____ CONDIMENT SHELF	_____ MILK MACHINE
_____ DRAINS/FLOORS	_____ TOASTER/MICRO	_____ COFFEE URN
_____ TABLES/CHAIRS	_____ CHOKING POSTER	_____ LIGHTS
_____ TRAYS	_____ FOUNTAIN	_____ GARBAGE CANS

RESPONSE

1. ALL PREPARED FOOD IS MAINTAINED AT PROPER HOLDING TEMPERATURES (HOT FOODS 140° F AND ABOVE, COLD FOODS 45° AND BELOW)

2. GLOVES AND HAIRNET/HAT WORN BY EMPLOYEES WHEN DIRECTLY HANDLING COOKED OR PREPARED FOODS

3. ALL FOOD SURFACES ARE BEING WASHED AND SANITIZED AFTER EACH SERVICE TO PREVENT CONTAMINATION

COMMENTS: _____ TOTAL NEGATIVE RESPONSES _____

HOT PREPARATION AREA

_____ CEILING VENTS	_____ HAND SINKS / TOWELS / SOAP	_____ FRYERS
_____ WALLS	_____ INSECTRICS (BUG ZAPPER)	_____ SHELVES
_____ HOODS	_____ OVENS - STACK/CONVECTION	_____ EXTINGUISHER/ANSUL
_____ DRAINS/FLOORS	_____ STEAMER	_____ CAN OPENER
_____ TABLES	_____ BUFFALO CHOPPER	_____ FANS
_____ SINKS	_____ BLENDER	_____ LIGHT/FLUORESCENT
_____ FOUNTAIN	_____ GARBAGE CANS	_____ STEAM KETTLES

TOTAL NEGATIVE RESPONSES _____

FOOD HANDLING OBSERVATIONS

RESPONSE

1. AUDITOR SURVEYS FOOD PREPARATION AREA FOR ANY RAW PERISHABLE FOOD, E.G, RAW MEAT, FROZEN VEGETABLES AND DOCUMENTS ITEMS ND TIME OBSERVED.

ITEM:

TIME:

IF THESE FOODS WERE NOT OBSERVED, ANSWER THE STATEMENT BELOW. IF THESE FOODS WERE NOT OBSERVED THE AUDITOR RETURNS TO FOOD PREPARATION AREA FOR FINAL OBSERVATION IN 30 MINUTES.

STATEMENT: RAW FOODS ARE EXPOSED TO ROOM TEMPERATURES FOR NO GREATER THAN 2 HOURS AFTER DELIVERY OR DURING FOOD PREPARATION – FOOD WILL BE TESTED FOR SAFE TEMPERATURE RANGES.

2. ALL PREPARED PERISHABLE FOOD ARE MAINTAINED AT PROPER HOLDING TEMPERATURES (HOT FOODS - 140° F AND ABOVE, COLD FOODS - 45° F AND BELOW).

3. MEAT BEING THAWED OUTSIDE OF REFRIGERATOR IS MAINTAINED UNDER COOL, FORCEFUL RUNNING WATER.

4. VENTED CANS ARE NOT MAINTAINED IN THE FOOD PREPARATION AREA & NOT OPENED/USED FOR RESIDENT/STAFF MEALS.

5. MEATS AND OTHER POTENTIALLY HAZARDOUS FOODS COOKED THE DAY OF THE AUDIT, WHICH WILL BE SERVED THE FOLLOWING DAY, ARE BEING RAPIDLY COOLED IN THE FREEZER OR REFRIGERATOR AS PER FACILITY POLICY.

6. DURING FOOD PREPARATION, EMPLOYEES COMPLETE ONE TASK AT A TIME TO MINIMIZE FOOD CONTAMINATION. IF INTERRUPTED, EMPLOYEE WASHES HANDS BEFORE RETURNING TO HANDLE FOOD.

7. GLOVES AND HAIRNETS/HATS ARE WORN BY EMPLOYEES WHEN DIRECTLY HANDLING COOKED OR PREPARED FOODS.

8. ALL CUTTING BOARDS ARE WASHED AND SANITIZED AFTER EACH USE TO PREVENT FOOD CONTAMINATION.

COMMENTS: _____ TOTAL NEGATIVE RESPONSES _____

SANITATION CHECKLIST – PAGE 2

COLD PREPARATION AREA		
_____ SLICER	_____ CEILING VENTS	_____ SALAD REFRIGERATOR
_____ SCALES	_____ TABLES	_____ EXTINGUISHER
_____ SINK	_____ SHELVES	_____ HOODS
_____ FANS	_____ FLOORS/DRAINS	_____ WALLS
_____ INSECTRICS (BUG ZAPPER)	_____ HOBART MIXER	_____ LIGHTS
_____ BUFFALO CHOPPER	_____ GARBAGE CANS	_____ KETTLES
1. PROPER FOOD HANDLING PROCEDURES BEING MET (SEE FOOD HANDLING OBSERVATIONS).		
		TOTAL NEGATIVE RESPONSES
COMMENTS:		
TRAY SERVICE LINE		
_____ CEILING VENTS	_____ HOT TABLE W/II	_____ TRAY CARTS
_____ HOODS/SHELVING	_____ CONVEYOR LINE	_____ ROLLING RACKS
_____ WALLS	_____ COFFEE URN/TABLE	_____ TRAY STORERS
_____ FLOORS/DRAINS	_____ FANS	_____ UTENSILS
_____ FLAT TOP RANGE	_____ SINK/SOAP/TOWELS	_____ GARBAGE CANS
_____ BROILERS	_____ JUICE REFRIGERATOR	_____ INSECTRIC (BUG ZAPPER)
_____ STEAM TABLE	_____ CHILLERS	_____ LIGHTS
		RESPONSE
1. GLOVES AND HAIRNETS/HATS ARE WORN BY EMPLOYEES WHEN DIRECTLY HANDLING COOKED OR PREPARED FOODS.		
2. ALL PREPARED PERISHABLE FOOD ARE MAINTAINED AT PROPER HOLDING TEMPERATURES (HOT FOODS - 140° F AND ABOVE, COLD FOODS - 45° F AND BELOW).		
		TOTAL NEGATIVE RESPONSES
COMMENTS:		
MOP ROOM		
_____ CEILING VENTS	_____ INSECTRIC (BUG ZAPPER)	_____ TABLE
_____ WALLS	_____ FLOORS/DRAINS	_____ SHELVES
_____ MOPS/BUCKETS	_____ HOSE	_____ LIGHTS
_____ CHEMICALS		
(MICROQUAT ALL PURPOSE CLEANER, REGAIN)		TOTAL NEGATIVE RESPONSES
COMMENTS:		
DISH MACHINE AREA		
_____ CEILING VENTS	_____ SHELVES	_____ CHEMICALS (SOLID POWER, JET DRY, LIME AWAY)
_____ WALLS	_____ TABLES	_____ TEMPERATURE - WASH
_____ FLOORS/DRAINS	_____ PANS	_____ TEMPERATURE - RINSE
_____ ROLLING RACKS	_____ INSECTRIC (BUG ZAPPER)	_____ TEMPERATURE - FINAL RINSE
		TOTAL NEGATIVE RESPONSES
COMMENTS:		

SANITATION CHECKLIST – PAGE 3

POT SCRUB

<input type="checkbox"/> CEILING VENTS	<input type="checkbox"/> FLOORS/DRAINS	<input type="checkbox"/> METAL WASH MACHINE
<input type="checkbox"/> LIGHTS	<input type="checkbox"/> HOSE	<input type="checkbox"/> CHEMICALS (SOLID POWER, STERABAC BLU, SOLITAIRE)
<input type="checkbox"/> WALLS	<input type="checkbox"/> SINKS	<input type="checkbox"/> FANS
<input type="checkbox"/> HOODS	<input type="checkbox"/> RACKS/SHELVES	

TOTAL NEGATIVE RESPONSES

COMMENTS:

COMPACTOR ROOM

<input type="checkbox"/> CEILING VENTS	<input type="checkbox"/> FLOORS/DRAINS
<input type="checkbox"/> LIGHTS	<input type="checkbox"/> HOSE
<input type="checkbox"/> WALLS	<input type="checkbox"/> INSECTRIC (BUG ZAPPER)

TOTAL NEGATIVE RESPONSES

COMMENTS:

RECEIVING AREA

<input type="checkbox"/> CEILING VENTS	<input type="checkbox"/> FLOORS/DRAINS
<input type="checkbox"/> LIGHTS	<input type="checkbox"/> INSECTRIC (BUG ZAPPER)
<input type="checkbox"/> WALLS	

TOTAL NEGATIVE RESPONSES

COMMENTS:

DRY STORAGE AREA

<input type="checkbox"/> CEILING VENTS	<input type="checkbox"/> FLOORS/DRAINS	<input type="checkbox"/> ROTATION OBSERVED
<input type="checkbox"/> LIGHTS	<input type="checkbox"/> SHELVES/RACKS	
<input type="checkbox"/> WALLS	<input type="checkbox"/> DENTED CAN SHELF	

TOTAL NEGATIVE RESPONSES

COMMENTS:

PRODUCE REFRIGERATOR I

<input type="checkbox"/> WALLS	<input type="checkbox"/> SHELVES/RACKS	<input type="checkbox"/> LIGHTS
<input type="checkbox"/> FLOORS/DRAINS	<input type="checkbox"/> GASKETS	
<input type="checkbox"/> CEILING	<input type="checkbox"/> TEMPERATURE	

FREEZER II

<input type="checkbox"/> WALLS	<input type="checkbox"/> SHELVES/RACKS	<input type="checkbox"/> LIGHTS
<input type="checkbox"/> FLOORS/DRAINS	<input type="checkbox"/> GASKETS	
<input type="checkbox"/> CEILING	<input type="checkbox"/> TEMPERATURE	

FREEZER III

<input type="checkbox"/> WALLS	<input type="checkbox"/> SHELVES/RACKS	<input type="checkbox"/> LIGHTS
<input type="checkbox"/> FLOORS/DRAINS	<input type="checkbox"/> GASKETS	
<input type="checkbox"/> CEILING	<input type="checkbox"/> TEMPERATURE	

SANITATION CHECKLIST – PAGE 4

DAY BOX IV		
_____ WALLS	_____ SHELVES/RACKS	_____ LIGHTS
_____ FLOORS/DRAINS	_____ GASKETS	
_____ CEILING	_____ TEMPERATURE	
SHIPOUT BOX V		
_____ WALLS	_____ SHELVES/RACKS	_____ LIGHTS
_____ FLOORS/DRAINS	_____ GASKETS	
_____ CEILING	_____ TEMPERATURE	
JUICE BOX VI		
_____ WALLS	_____ SHELVES/RACKS	_____ LIGHTS
_____ FLOORS/DRAINS	_____ GASKETS	
_____ CEILING	_____ TEMPERATURE	
MILK REFRIGERATOR VII		
_____ WALLS	_____ SHELVES/RACKS	_____ LIGHTS
_____ FLOORS/DRAINS	_____ GASKETS	
_____ CEILING	_____ TEMPERATURE	
FREEZER VIII		
_____ WALLS	_____ SHELVES/RACKS	_____ LIGHTS
_____ FLOORS/DRAINS	_____ GASKETS	
_____ CEILING	_____ TEMPERATURE	
		RESPONSE
1. RAW FOOD STORED BELOW COOKED ITEMS.		
2. ROTATION OF STOCK BEING OBSERVED - CHECK DAIRY PRODUCTS.		
3. ALL FOODS COVERED, LABELED AND DATED.		
4. SOLID AND LIQUID POTENTIALLY HAZARDOUS FOODS ARE STORED IN SHALLOW PANS TO FACILITATE RAPID COOLING. DEPTH NOT TO EXCEED 4 INCHES.		
5. ALL POTENTIALLY HAZARDOUS FOOD ITEMS REMAINING IN REFRIGERATOR NOT TO EXCEED THE 48-HOUR LEFTOVER POLICY.		
COMMENTS:		TOTAL NEGATIVE RESPONSES

Appendix E

Quality Assurance Tracking Form

QUALITY ASSURANCE TRACKING FORM HUDSON COUNTY PSYCHIATRIC FACILITY

DATE: JANUARY - FEBRUARY, 1996

ASPECT OF CARE AND INDICATOR	MONITORING METHOD	THRESHOLD FOR EVALUATION	SIGNIFICANT FINDINGS (% COMPLIANCE/ACCURACY)	CORRECTIVE ACTION PLAN
<u>I. Food Service</u>				
Monthly:				
D. Tray Accuracy	10 trays are monitored randomly on various wards N=220	100%		
1. Compliance to menu	Food items reviewed to match diet prescription	100%		
2. Condiments are appropriate for diet	Appropriate diet kit provided	100%		
3. Correct portion size provided	Personnel trained to provide correct proportions	100%		
4. Food preferences provided	Food actually provided is compared to food requested	100%		
5. Attractive tray appearance	Trays viewed for garnish, food preparation and color compatibility	100%		

**QUALITY ASSURANCE TRACKING FORM
HUDSON COUNTY PSYCHIATRIC FACILITY**

DATE: JANUARY - FEBRUARY, 1996

ASPECT OF CARE AND INDICATOR	MONITORING METHOD	THRESHOLD FOR EVALUATION	SIGNIFICANT FINDINGS (% COMPLIANCE/ACCURACY)	CORRECTIVE ACTION PLAN
D. Sanitation				
1. Tray free of spills	Tray viewed for spills upon delivery	100%		
2. Service ware soil-free	Trays viewed for soil, cracks and chips	100%		
3. Sanitation maintained appropriately	Sanitation checklist conducted 2x/week In-depth environmental rounds conducted 1x/month	100%		
4. Strength of pot washing cleaning solution log	Litmus test of pot washing cleaning solution conducted 3x/day at each meal	100%		
E. Temperature				
1. Refrigeration temperature logs	All freezer and refrigerator temperatures recorded twice daily	100%		
2. Dish machine temperature log	Dish machine temperature monitored 3x/day at each meal	100%		

**QUALITY ASSURANCE TRACKING FORM
HUDSON COUNTY PSYCHIATRIC FACILITY**

DATE: JANUARY - FEBRUARY, 1998

ASPECT OF CARE AND INDICATOR	MONITORING METHOD	THRESHOLD FOR EVALUATION	SIGNIFICANT FINDINGS (% COMPLIANCE/ACCURACY)	CORRECTIVE ACTION PLAN
D. Trayline Checklist	Food temperature and timeliness of service checked at breakfast, lunch and dinner. Daily census recorded (form used)	100%		
E. Test Trays	Meal trays are randomly tested for temperature, accuracy, taste and appearance N=19	100%		
F. Safety Insured	A "Loss Control Tour" is conducted monthly to insure safety standards	100%		
Quarterly: A. Food Acceptability	Plate Waste Reports Items with greater than 25% waste are reviewed for potential corrections	> 75% acceptability		
B. Level of Satisfaction	Residents questioned on food temperature, menu selection and overall satisfaction	100%		

QUALITY ASSURANCE TRACKING FORM
HUDSON COUNTY PSYCHIATRIC FACILITY

DATE: JANUARY - FEBRUARY, 1998

ASPECT OF CARE AND INDICATOR	MONITORING METHOD	THRESHOLD FOR EVALUATION	SIGNIFICANT FINDINGS (% COMPLIANCE/ACCURACY)	CORRECTIVE ACTION PLAN
<u>II. Clinical Nutrition Service:</u>				
A. Chart Reviews				
1. Timeliness	5 random medical records/month/ dietitian reviewed (form used) N-5 Time frame coincided with policy and procedure	100%		
2. Nutritional Status	Indicators were addressed	100%		
3. Nutritional Assessment	Identified significant nutritional issues	100%		
4. Goals	Goals were measurable, objective and resident-centered	100%		
5. Care Plans	Plans were measurable, objective and consistent with goals	100%		
B. Therapeutic Accuracy				
	Diet order transcription from a minimum of 3 wards reviewed each month			

**QUALITY ASSURANCE TRACKING FORM
HUDSON COUNTY PSYCHIATRIC FACILITY**

DATE: JANUARY - FEBRUARY, 1996

ASPECT OF CARE AND INDICATOR	MONITORING METHOD	THRESHOLD FOR EVALUATION	SIGNIFICANT FINDINGS (% COMPLIANCE/ACCURACY)	CORRECTIVE ACTION PLAN
1. Meal tickets consistent with doctor's diet order	Doctor's diet order compared to meal tickets	100%		
2. Nourishment consistent with doctor's diet order	Doctor's diet order compared to departmental nourishment log	100%		
3. Nourishment census accurate	Total number of supplements distributed reviewed for accuracy	100%		