

EMPLOYEE BEHAVIOR OBSERVATION WITH REGARD TO FOODSERVICE SANITATION

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ABSTRACT

Increases in foodborne illness outbreaks have continued to rise in the United States despite laws enacted to regulate operators within the foodservice industry. In relation to other industries, the foodservice industry comes in contact with the public generally more than any other; however, the foodservice industry has more variations in laws around the country than any other public health industry. With different laws and regulations around the country, this study hopes to emphasize the importance of continual employee training to establish consistent employee behaviors that will help reduce the incidence of foodborne illness outbreaks. It is the intent of this study to relate employee behavior about sanitation practices in a foodservice operation.

Key Words: Foodservice, Sanitation, Employee, Behavior, Qualitative, Observation

INTRODUCTION

Over the last few years, foodborne illness outbreaks have seen an increase in reporting's from the restaurant level. With the discovery of the new types of foodborne illnesses, it is imperative that operators within the hospitality industry stay informed with up to date information as it pertains to federal, state, and local health regulations. Many times, operators are cited for failing to meet the standards established by either Local or State governments because they have been instructed to understand and apply the standards listed by the National Restaurant Association Education Foundation, which bases its information and assessments on the FDA model Food Code, exclusively. While the FDA model Food Code is a basic outline for the food codes adopted by the states and localities, the states and localities can, if they wish, make the codes stricter or more lenient than the recommendations within the FDA model Food Code because "The model Food Code is neither federal law nor federal regulation and is not preemptive." (U.s. Department of, 2005, p. Preface iii)

As the information on the federal level was published every two years, until 2001, when the FDA adopted a 4 year revision program, the current food code was published in 2005, and consists of 8 chapters and 7 annexes. The FDA states that the food code is a "...model that assists food control jurisdictions at all levels of government by providing them with a scientifically sound technical and legal basis for regulating the retail and food service segment of the industry..." (FDA Food Code, 1993/2005, para. 1) Unfortunately, with the complexities of the Federal Food Code, and the issuance of revisions every two years up until 2001, the Association of Food and Drug Officials found that in 2004, 48 out of 56 states and territories have implemented some type of food safety program that is modeled after versions of the FDA model Food Code from the years 1993 to 2005, and with 20, 18, and 2 states each having adopted the 1999, 2001, and 2005 FDA model Food Codes, respectfully (Real Progress in, 2002/2006). Since each of the 56 States and Territories are given the opportunity to either adopt the Federal model Food Code, or create one to their satisfaction, it should be relatively easy to understand why most employees in the food service industry are unaware of some of the minute differences between the different states, and even within some local jurisdictions.

As previously mentioned, the FDA provides the 2005 model Food Code to 56 States and Territories. In addition to the standard 50 United States, Washington DC, the U.S. Virgin Islands, Puerto Rico, Guam, N. Mariana Islands, and American Samoa are the territories that are included; however, the Indian Health Services (IHS) is still trying to ascertain the status of any food code adoptions within tribal

governments (Real Progress in, 2002/2006). For this reason, it is imperative to understand the differences between the food codes of different years and the food codes of the different states and territories, and since Native American Tribal Governments are sovereign nations, the lack of information provided means that the food service employee will need to locate and understand the guidelines for food safety and sanitation within that specific jurisdiction. Considering the information that can be obtained from 56 different states and territories, that utilize up to 7 different versions of the FDA model Food Codes (including those that have no official adoption), and the ability of not only each state to create its own regulations, but also for each county and/or city to create additional regulations that can add to the amount of knowledge required of a food service employee, it could be considered amazing that massive foodborne illness outbreaks are not occurring more often.

Employees of the food establishment are the ones that come in contact with the food items being prepared for guest consumption yet most laws and regulations state that it is the manager that is responsible for maintaining the knowledge and expertise required to keep food safe. This study is designed to focus on the behaviors that foodservice employees maintain with regard to minimizing food contamination, but is limited in scope based on time and authorization constraints that should be included in future studies of this nature. As a result, this study will utilize a qualitative method of research to 1) observe the behaviors of employees in a foodservice establishment, 2) investigate observed employee behaviors as listed in foodservice health inspections, and 3) relating the observations to known causes of foodborne illnesses. The objective, therefore, is to answer the question of whether or not employee behavior with regards to sanitation practices in a foodservice establishment has an impact on chances of food contamination within the establishment.

LITERATURE REVIEW

Continuing Education in Health Professions

“No profession is any better than its current practices.” (Abrahamson, 1984, p. 4) In the fields of public health, current practices are even more important in an effort to maintain the respect and trust of the public they are serving. The medical profession is one of the largest public health fields where continuing education to maintain licensure for practice occupies considerable amounts of time. (Tian, Atkinson, Portnoy, & Gold, 2007) Tian, et al. discussed in their study, how “47 of 54 state and territorial medical licensing boards require completion of 12 to 50 hours” of continuing medical education yearly. (Tian et al., 2007, p. 16) They reviewed evaluation strategies of continuing medical education as it relates to a 4 level modified Kirkpatrick Model for Summative Evaluation. The levels indicated in that study included (1) Learner satisfaction, (2) Learning outcomes, (3) Performance improvements, & (4) Patient or health outcomes. The results of this study indicated that additional research is required due to the difference of evaluation methods used within the different studies reviewed. They found that 66% of the studies evaluated utilized only 1 level of evaluation, while 28% utilized 2 levels, and 6% utilized 3 levels. The authors of this study state that the prior levels of evaluation are to serve as a base for the upper levels of evaluation. As stated previously, it was discussed that a majority of the studies evaluated utilized only one level of evaluation without contextualizing the results as having passed though the lower levels of evaluation. Through this basis, the authors state that isolated levels of evaluation should have been rationalized by the researchers that performed the initial studies. (Tian et al., 2007, p. 20) It is evident that while studies related to the effectiveness of continuing education are continually evolving, foodservice sanitation is currently not a concept included in continuing education.

“Food hygiene in hospital requires special attention to rigorous preventive measures to minimize the hazard of foodborne disease.” (Buccheri et al., 2007, p. 54) As a result of foodborne illness, hospitals are generally regarded as one of the safest places for food. While individual restaurants tend to serve the population as a whole, the institutional setting of a hospital is highly susceptible to foodborne illness

outbreaks due to its increased presence of people from the high risk population. In their study of *Food Safety in Hospitals*, Buccheri, et al., has the following conclusions about hospital foodservice systems:

The hospital food-service system, when contracted out to an external caterer, is considered one of the most complicated production processes within the hospitality sector. Indeed, the diffusion of compulsory competitive tendering, the increasingly demanding, bureaucratic hospital administration regimen, the stringent food costing, the standardization and mass production of meals, the frequent siting [*sic*] of hospitals at considerable distance from the production centre could arise negative effects on both the safety and quality of food. This outlines the need of a strict and systematic monitoring of potential food hazards. (Buccheri et al., 2007, p. 54)

The authors of this study, which is based in Italy, state that “Providing tailored scientifically sound and updated knowledge and identifying factors that could contribute to generate positive attitude and motivate behaviour [*sic*] change in a definite setting could help to minimize foodborne hazard in hospital catering and enhance the practical utility of hygiene training for the personnel involved in food service functions.” (Buccheri et al., 2007, p. 55); however, while continuing education is available in other public health fields, the United States lacks the requirements for foodservice personnel that the European Union has established. As a result, the study in Italy made a point of noting that professional food handlers are mandated by European and national legislation to have initial and ongoing training in food safety, even though the participants in their study were generally nurses or domestic staff that is not mandated to meet the food safety requirements.

Evaluation and Peer Assessments

In evaluating the literature for this paper, a discussion occurred that indicated that peer assessments are a biased way for professions to establish compliance when actual compliance may not be met. While it could be shown that there may be some in just about every profession that will attempt to take advantage of a system of checks and balances, the overall majority of individuals would most likely prefer to do the right thing rather than allow a major catastrophe to occur due to their lack of due diligence.

In defining the public health workforce, the “deceptively simple phrase”, public health, encompasses everything that a community does to ensure the safety of its population. (Gebbie, Merrill, & Tilson, 2002) Utilizing this information, the public health workforce is not just medical or health related, but also involves, among others, educators, transportation experts, house planners, etc. It must be noted, however, that “Effective public health practice requires attainment of additional analytic, communication, and cultural skills.” (Gebbie et al., 2002, p. 63) In relation to continuing education, Gebbie et al. states that as the field of public health changes, continuing education, even for current skill sets, is essential in the public health profession. Alternatively, while there is an existing national certification for health educators and sanitarians, there is currently question as to whether or not there should be a national certification for public health practice. (Gebbie et al., 2002, p. 64) Additionally, how to incorporate assessments into the training programs for public health professionals is another area of interest.

According to Charles & Henner, “the effort to integrate evaluation in an ongoing manner is balanced by the value of continuous feedback.” (2004, p. 362) As part of their study, the authors conducted educational training sessions which consisted of an orientation to the use of the public health information link, a website designed to train public health professionals in ways to conduct information retrieval. In the results of this study, of the one hundred twenty-four people in the study, 55% stated that they had recommended this training to other individuals, while 77% of respondents stated that they had utilized new information that was presented and incorporated it into their work routine. (Charles & Henner, 2004, p. 368) It is important to note that in this study, the assessments associated with public

health training were the tools for evaluating the effectiveness of the training program. Alternatively, assessments can also be used as a way of emphasizing a point that is trying to be made.

The establishment of rhetorical accomplishments of assessment tasks is a way of determining professional competence, according to Katherine Nicoll. It is this author's contention that "assessment tasks are relays in the exercise of power-knowledge, which constitute the lecturer as body and object of knowledge." (Nicoll, 2007, pp. 1-2) Overall, this study appears to emphasize the need for continual, i.e. rhetorical, assessments as a means of determining the extensive qualifications relating to professional competence. As with many studies relating to assessment tasks, it is imperative to understand that higher powers within an organization can impact the status of different accomplishments of individuals. Within a peer assessment situation, it is one's peers that are determining the status of individual accomplishments, while the evaluation of staff performance is based generally upon observations from superiors.

In most cases, employees want evaluations of performance to be given to them in regular intervals. In the foodservice industry, this is no exception; however, the availability of time that a manager needs to perform an honest evaluation is generally not accessible and results in lowered morale and lowered cohesiveness within the organization. According to Kimball, Pardee, & Larson, nurses in the state of Washington are no exception either. While the information contained in their study is over 35 years old, the principles contained within are still as applicable today as they were when the study was first performed. In the study, it was determined that "evaluation of work performance in nursing is difficult for both the evaluator and the person being evaluated." (Kimball, Pardee, & Larson, 1971, p. 1744) As a result of their study, nurses at the hospitals in the state of Washington have the necessary tools to understand how they will be evaluated with respect to performance. While Understanding how a person is being evaluated assists in understanding areas of needed improvement, assessments are generally the key to establishing individual training needs.

In Kentucky, a study was conducted to determine areas of needed continual education, where it was stated that "Continuing education is particularly important for public health educators as new health issues arise and as demands placed on practitioners continue to change." (Lindley, Wilson, & Dunn, 2005, pp. 97-98) In conducting the study, the authors centered on a list of core competencies and skill assessments that are parts of public health education. The results of the study were broken down by education, time spent in public health, and skills rated by proficiency level and produced a response rate of 53%. Included in the responses was the desire for additional training, of which was listed by nearly all respondents. The authors of this study then concluded that with the "overwhelming desire/need for training in the core competencies and skills reported among currently employed public health educators and/or those providing public health education," that the Kentucky Department of Public Health should offer continuing education and training in an effort to address these needs. (Lindley et al., 2005, p. 103)

METHODOLOGY

The procedure involved with this study is based on a Qualitative design. Field notes were collected from observations done at two restaurant establishments between the times of 1:30 p.m. and 3:00 p.m. Observations were conducted in a non-participant manner and were focused on the behaviors of kitchen and front counter employees during the observation period. In addition to the observations, research was conducted through the use of the Las Vegas Review Journals weekly *Restaurant Report* which is based on information gathered from recent inspections completed by health inspectors from the Southern Nevada Health District. Over the course of 2 weeks, counts were conducted to establish frequencies in violations attributed to employee behavior as opposed to violations based on regulations. Finally, information was obtained from lectures, presented as guests to HOA 720 Principles and Practices of Food Service Management, by a licensed Southern Nevada Health District employee and a licensed

State of Nevada health inspector. Together, these three sources of information will provide the basis for the results gathered in this study.

As a way of understanding the information gathered in the observations, articles, and lectures, it is important to establish some assumptions based on regulations contained within the FDA 2005 model Food Code.

RESEARCH ASSUMPTIONS

Two basic assumptions were made in the development of this study. The first was that the provision of safe foodservice required a variety of abilities that may be performed by the foodservice employee with varying degrees of skill and second, that all foodservice employees had received at least basic training in foodservice sanitation. This assumption required the delineation of categories of ability needed for the performance of safe, effective foodservice operations. For the purposes of this study, it was assumed that all foodservice employees must be able to

- Show no violations of critical items
- Describe the relationship between the prevention of foodborne disease and the personal hygiene of a food employee
- Describe the symptoms associated with diseases that are transmissible through food
- Explain the significance of the relationship between maintaining the time and temperature of potentially hazardous food and the prevention of foodborne illness
- Explain the hazards involved in the consumption of raw or undercooked meat, poultry, eggs, and fish
- State the required food temperatures and times for safe cooking of potentially hazardous food including meat, poultry, eggs, and fish
- State the required temperatures and times for the safe refrigerated storage, hot holding, cooling, and reheating of potentially hazardous food
- Describe the relationship between the prevention of foodborne illness and the control of the following:
 - cross contamination
 - hand contact with ready-to-eat foods
 - handwashing
 - maintaining the food establishment in a clean condition and in good repair
- Describe foods identified as major food allergens and the symptoms that a major food allergen could cause in a sensitive individual who has an allergic reaction
- Explain the relationship between food safety and providing equipment that is:
 - sufficient in number and capacity
 - properly designed, constructed, located, installed, operated, maintained, and cleaned
- Explain correct procedures for cleaning and sanitizing utensils and food-contact surfaces of equipment
- Identify the source of water used and measures taken to ensure that it remains protected from contamination such as providing protection from backflow and precluding the creation of cross connections
- Identify poisonous or toxic materials in the food establishment and the procedures necessary to ensure that they are safely stored, dispensed, used, and disposed of according to law
- Identify critical control points in the operation from purchasing through sale or service that when not controlled may contribute to the transmission of foodborne illness and

explaining steps taken to ensure that the points are controlled in accordance with requirements

- Explain the details of how food employees comply with the HACCP plan if a plan is required by the law or an agreement between the regulatory authority and the food establishment
- Explain the responsibilities, rights, and authorities assigned to the:
 - food employee
 - conditional employee
 - person in charge
 - regulatory authority
- Explain how the person in charge, food employees, and conditional employees comply with reporting responsibilities and exclusion or restriction of food employees

For the purposes of this study, it was assumed that the following factors could variously contribute to the development of foodservice employee abilities:

- Basic professional education
- Professional work experience
- CE (including in-service education, CE offerings, short professional courses, and formal academic coursework whether leading to a higher degree recognized by the profession or not)
- Informal education from mentors or preceptors or other people that work with the professional and give advice or information
- Self-study (referral to reference books, texts, journal articles, etc.)
- Other—anything else that may have had a part to play in building professional abilities.

RESULTS

Observation Number One

The Establishment

It was 1:49 p.m. when I entered the establishment in which I was to perform my study. As I walked through the door, I was greeted by a sign that said "enter here", but the area had been blocked by a sign that displayed a picture of an item that could be ordered here. I proceeded to walk around the items placed in my path, and walked past a wall to my right that contained the customer drink fountain which dispensed Pepsi products. To the left of this machine, displayed on the wall, were a series of awards for customer service, and a name plate that instructed the customers to contact the store manager with any concerns.

The front counter, where I was to place my order, was designed in a curved format and had two computer terminals, called P.O.S. for Point Of Sale, on the left most side. On the right most side, sat a bowl of red and white striped circular objects wrapped in a clear plastic. It was next to this bowl that workers of the establishment would place trays of different food items and shout out numbers that would be responded by a person arriving and taking the tray. This process was repeated continually during the duration of my observation; however, at intermittent times, the food items would be placed inside several bags of white plastic instead of on a tray.

Above this area was a sign that stretched the same length of the counter and displayed the list of food items, some with pictures, and the cost of each item. I was greeted by a woman of very dark skin that was wearing a purple shirt, a black headpiece called a visor, and black slacks. I identified the items

that I wished to purchase and paid for my order. While I waited for my purchase, I noticed that behind the woman that I had spoken with contained several items that seemed to be designed for people to look at while waiting for food. On the far left, a barrier connected the order counter to the wall of the building. This barrier had a handle on it that allowed certain people access between the waiting area and the kitchen area. Immediately next to this barrier that allowed for entrance was a box with what appeared to be pictures of water with the word "Aquafina" on the sides. The front, which appeared to be clear, showed three levels with bottles of liquid placed side by side on each level. The bottles appeared similar to the sides of the box with the word shown on each one.

Continuing along, the next portion of the area contained several smaller items which looked to function as a system of objects. In the center of this section was a sink for washing hands and the other items included a liquid soap dispenser, a paper towel dispenser, and a sanitizer dispenser. In addition, a sign of red and white was posted in this area that said "We wash and sanitize our hands".

Upon receiving my order, I found a location to sit that allowed me a good vantage point in which to observe the employees of this establishment while they performed their duties. A quick glance around the area of observation, called the Kitchen, I was able to count the number of subjects in the area as containing a total of 10 employees, of which 6 were female and 4 were male. Of the 10 employees, 3 were wearing a black shirt, while the rest wore purple. There was one employee that had a different headpiece, called a beret and was also wearing black shorts instead of slacks. It was discovered during the observations that this person was the leader of the group and held the title of General Manager, in addition to discovering that the one female and two males in black shirts were considered shift leaders (a designation given to those in subordinate roles to the General Manager and can be a replacement for the leader when the leader is not available).

Employee Behavior

During the time of the observation from 1:49 p.m. until 3:00 p.m., 5 employees were seen washing their hands. The first was done by the general manager, where she turned on the water by reaching across the sink to the handles with both hands and turning the levers which started the flow of water. She then placed her hands under the running water for an instant, then reached up to the soap dispenser with her right hand and pushed the lever three times, holding her hand under the dispenser to catch three amounts of liquid soap. It was then that she brought her hands together and rubbed them together for 5 seconds and, while continuing to rub them together, placed her hands under the water to remove the lather she had just created. 5 seconds later, she removed her hands from the water and again reached across the sink and turned the levers to stop the flow of water. Finally, she reached up to the paper towel dispenser with her right hand and pressed the lever on it three times, then grabbed the towels that had appeared from the dispenser ripping it from the machine and used the towel to rub her hands together again, this time to remove the remaining water that was present. Similarly, the second employee to be observed washing their hands was the female shift leader. Before she began the ritual of washing her hands, she placed a black-colored net over her hair and then placed a visor on top of her head. Upon finishing with her head, she washed her hands and used the exact same procedures as the general manager. Ultimately, each of the 5 employees observed in the procedure of washing their hands performed the procedure in exactly the same manner; however, the fifth employee made one deviation from the procedure and applied a small amount of sanitizer on her hands after completing the hand washing process.

Other observations to note during this visit included a pregnant woman adjusting her glasses and rubbing her forehead with her hands, while chatting with a male employee that was using his index finger on his left hand to dig in his left ear, then rubbing his face with both hands. These two employees were not observed washing their hands after these activities, but were observed dealing with customers and

preparing food products. In addition, there were two Hispanic ladies in the kitchen that spent the entire time of the observation preparing food products. At intermittent times, these ladies would grab a towel from an unidentified location and wipe the area that they were working and then continue preparing food items.

Observation Number Two

The Establishment

The second observation began at 1:30 p.m., and similar to the previous establishment had an area designed to line up customers, called a queue line; however, I did not get to pass by any objects on my way to the counter. In this location, the front counter, was designed in a diagonal format and had two P.O.S. systems on the left most side. On the right most side, sat a rectangular silver colored box with three sections that contained three different colored packages with the words *mild*, *hot*, and *fire sauce* on them. Between this box and the registers were several signs with pictures of different food items, and a large platter with red and white striped circular objects wrapped in a clear plastic, surrounded by four sections that contained the same packages as the silver box at the end of the counter. As with the other establishment, a section of the counter was set aside for employees to place the trays of food items and shout out numbers that would be responded by a person arriving and taking the tray. Again, this process was repeated continually during the duration of my observation; however, at intermittent times, the food items would be placed inside several bags of white plastic instead of on a tray.

Above this area was a sign that stretched the same length of the counter and displayed the list of food items, some with pictures, and the cost of each item. Here, I was greeted by a woman of brown skin that was wearing a purple shirt, a black headpiece called a visor, and black slacks. I identified the items that I wished to purchase and paid for my order. While I waited for my purchase, I noticed that behind the woman that I had spoken with contained the kitchen area. To the left of the counter was an opening that allowed access to the kitchen area, where turning left upon entering would allow entrance into an area designated as the *drive-thru* [sic]. Continuing forward from the opening would bring a person to the handwashing station. As with the previous location, a red sign with white lettering was in this section that stated, "We wash and sanitize our hands".

Upon receiving my order, I again found a location to sit that allowed me a good vantage point in which to observe the employees of this establishment while they performed their duties. The count of subjects in this location was a total of 8 employees, of which 7 were female and 1 was male. Of these 8 employees, 1 was wearing a black shirt, while the rest wore purple. It was discovered during the observations that this person was the leader of this group and held the title of General Manager, in addition, no shift leaders appeared to be present at this location.

Employee Behavior

During the time of the observation from 1:30 p.m. until 3:00 p.m., 1 employee was seen washing their hands. One of the kitchen employees, a Hispanic woman of about 5 feet 2 inches tall would get a broom that was propped against a wall, and proceed to sweep the floor of the kitchen. When a customer placed an order in the drive-thru, this employee was observed placing the broom against the wall and she would wash her hands. In the process of washing her hands, she started by turning on the water by reaching across the sink to the handles with both hands and turning the levers which started the flow of water. She then reached up to the soap dispenser with her right hand and pushed the lever twice while holding her left hand under the dispenser to catch two amounts of liquid soap. It was then that she brought her hands together and rubbed them together for 5 seconds and, while continuing to rub them together, placed her hands under the water to remove the lather she had just created. 5 seconds later, she removed her hands from the water and again reached across the sink and turned the levers to stop the flow

of water. Finally, she reached up to the paper towel dispenser with her right hand and pressed the lever on it twice, grabbed the towels that had appeared from the dispenser ripping it from the machine and used the towel to rub her hands together again, this time to remove the remaining water that was present. The employee then went to the kitchen area and prepared the food that was ordered by the customer. When the food was completed, she again grabbed the broom and started to continue sweeping. Over the next 20 minutes, this employee would sweep, stop, and prepare food, although at no other times was she observed washing her hands before returning to the kitchen.

Other observations to note during this visit included the general manager that was observed walking around the kitchen and watching what the employees are doing. After walking the area of the kitchen once, she headed into the dining room and told the lady at the front counter that she was going to the restroom and would be right back. This general manager returned from the restroom 5 minutes later, went directly into the kitchen and had another Hispanic woman follow her into the dining room where she showed the Hispanic woman a wall and asked her to clean the area. The general manager then went back to the kitchen and assisted with preparing food orders for customers; however, did not wash her hands before doing so.

RESTAURANT REPORT

Every Wednesday, the Las Vegas Review Journal publishes a weekly restaurant report of critical violations found by inspectors from the Southern Nevada Health District. Each restaurant inspected receives a grade of either “A”, “B”, “C”, “D”, or closed, depending on the number, type, and severity of violations discovered by the health inspection. For the purposes of this study, two weeks (June 6th, 2007 & June 13th, 2007) were used as research into employee behaviors noted by licensed Environmental Health Specialists. Counts were completed in the restaurant reports that resulted in a total of 61 new inspections and 59 re-inspections. The re-inspections consisted of restaurants that had previously received violations and were allowed to have another inspection for the chance of correcting the violations and improving the health inspection grade. Of the re-inspections, 55 resulted in upgrades to a grade of “A”, three were closed due to repeat violations and one was downgraded to a grade of “C”. Of the new inspections, 41 (67.2%) of the violations were a result of employee controllable activities while the other 20 violations were a result of items that employees had no control over. Controllable activities included “...food handler observed repeatedly wiping hands on pants with food debris on them” (White, 2007, p. 4E), “...cutting boards stored on floor” (White, 2007, p. 4E), or “...eye cover stored in freezer” (White, 2007, p. 4E) On the other hand, non-controllable activities included “...No sanitizer solution available in prep area” (White, 2007, p. 4E), “... no splash guards on hand sink next to food and mixer” (White, 2007, p. 4E), or “...expired milk and soy milk on premises” (White, 2007, p. 4E). Of the 41 employee controlled violations, 31 (75.6%) were directly related to improper employee behavior, such as the controllable activities listed above, but did not include violations such as items held at improper temperatures. While the focus of controlled and non-controlled activities is a basis of this study, a separate count was conducted to determine the number of violations which resulted from health inspector’s observations of improper hand washing. A total of 10 instances (16.4% of 61 violations and 32.3% of the 31 violations directly related to employee behavior) were counted that resulted in a violation by one or more employees either not washing hands properly or not washing hands at all after performing a task that requires hand washing. These handwashing violations as listed in the Las Vegas Review-Journal Restaurant Report for both weeks are (it must be noted that only one person improperly washing hands is a violation, where one of the reports had three employees and another had two employees that amplified the violation):

1. “...dish washer observed not washing hands after handling dirty dishes.”
2. “...three food handlers washing hands without drying them.”
3. “...three food handlers washing hands without drying them.”

4. "...three food handlers washing hands without drying them."
5. "...two food handlers observed dropping items on floor, picking them up and not washing hands before resuming food service."
6. "...two food handlers observed dropping items on floor, picking them up and not washing hands before resuming food service."
7. "...employees not following proper hand-washing procedures."
8. "...manager failed to wash hands after handling raw meat."
9. "...dish washer failed to wash hands after handling dirty dishes and before handling food."
10. "...dishroom [sic] employee not following proper hand-washing procedures."

GUEST LECTURES

Linda Newton, REHS, Southern Nevada Health District

During the month of April in 2007, Ms. Linda Newton was invited to speak in the HOA 720 "Principles and Practices of Restaurant Management" class. The class was located on the fifth floor of Beam Hall building BEH in the conference room on Monday evenings from 5:30 p.m. until 8:20 p.m. Ms. Newton appeared to be a woman in her late thirties to early forties standing just under my height of 5 feet 10 inches at about 5 foot 8 inches. Her hair was platinum blonde and to me looked like a product of Ms. Clairol. While the professor set up the projector for the presentation, Ms Newton walked around the room and introduced herself to the 10 students in the class. Having met Ms. Newton back in April of 2006, and staying in fairly close contact, she and I exchanged polite hellos, until another student asked why she didn't go and talk with Edward, to which she responded with "Ed and I are old friends, there is no reason for me to introduce myself to him.", which was correct, but appeared to make the other classmates upset that I was being treated differently than they were treated by this guest.

During the course of the lecture, our class learned information about creating a HACCP plan and the amount of manpower involved in creating one that is highly effective. In addition, she presented a set of power point slides dealing with food sanitation. During the lecture, she discussed information on preventing foodborne illness, what foodborne illnesses are, what foodborne intoxications are, symptoms of foodborne illnesses, personal hygiene, proper handwashing, and food server and food handler duties. Her lecture assisted with the formation of my domain analysis, where she described the types of hygiene for individuals that are "must bath and be in clean uniform or clothing, Hair restrained with a hat, hairnet, or visor, and Handwashing must be performed for at least 20 seconds." (L. Newton, personal communication, April 16, 2007, p. 7).

Norman Marrah, REHS, Deputy Food and Drug Commissioner, State of Nevada

Mr. Marrah was very professional in his presentation of material for the class during his lecture. Standing at 5 feet 5 inches tall, he was a very soft spoken person until he started talking about his passion of food safety, and then his face brightened and a smile appeared on his face. It was not found out until later, that he was nervous about speaking in front of our class because he thought he would be presenting to a group of people with no experience in foodservice sanitation. When he came to the realization that our class was familiar with the regulations established for restaurants and that we were actively participating in the conversation helped to ease his nervousness and increase his level of excitement.

While Linda Newton was to present the lecture on safe foodhandling practices, Mr. Marrah was brought in to discuss the regulations behind building a new establishment as it relates to the State of Nevada. During his presentation, Mr. Marrah handed each student a copy of the Nevada State Health Divisions "Bureau of Health Protection Services" *Food Establishment Plan Review Application*. Over the course of the next two hours, Mr. Marrah went through the items on the application and discussed with the class the importance of each item as it relates to keeping food safe. When he began to describe

the process of evaluating the application for a new business, he spent 20 minutes continually discussing the requirements for hand washing lavatories and why proper handwashing should be at the top of the list in designing a new establishment. During this time he spoke briefly about Shigellosis and Staphylococcal Gastroenteritis, the two foodborne illnesses that are associated with improper handwashing. He also discussed handwashing in the context of preventing cross-contamination, where food handlers move from one task to another without washing their hands. Mr. Marrah then discussed the four illnesses that are associated with cross-contamination, which are Campylobacteriosis, Salmonellosis, Listeriosis, and Hemorrhagic Colitis (also known as Escherichia coli [E. coli 0157:H7]).

CONCLUSION

This qualitative study began with a literature review designed to show the importance of continuing education and peer reviews in the public health areas. The literature contained detailed accounts of studies completed that established a need for continuing education in order to ensure that public health professionals stayed up to date on the newest information available to maintain a safe public. In addition, the literature stated that peer evaluations are needed to ensure that those who are utilizing the continuing education are resulting in behavioral changes.

This study showed that employee behavior is directly related to chances of possible food contamination. Through a direct use of triangulation, a relationship was established between the objects of observation, inspections, and lectures as they relate to handwashing and employee practices. As a result, this study found that employee behavior is related to possible contamination and that proper handwashing is a critical component to combat contamination, but not practiced properly by all employees.

DISCUSSION

Through the literature review, information was gathered to show that studies have been completed in the public health sector with regard to food sanitation; however studies related to restaurant establishments have not been included in these studies. As a result, the information gathered pertained to food sanitation in an institutional setting, where service is designed for individuals classified as a captive audience. This lack of studies related specifically to restaurants can either be an oversight of researchers or it could stem from an industry that may be fighting against research that might show a need for increased guidelines. During the course of this study, it became apparent that future research of this design may be difficult to achieve based on apparent unwillingness for cooperation from restaurants and the Southern Nevada Health District. In addition, undercover stories such as *Dirty Dining* by Dateline NBC have made some companies protective of public health knowledge within their establishments; however, it could be noted that future studies such as this may be able to show that the establishment wants to learn about any issues before they arise and this type of study can assist in giving the establishment ideas on what to look for as they are observing their employees. It must also be noted that a component of some restaurants, predominantly fast food, is the need to produce a product in a relatively quick manner. Unfortunately, it seems that most restaurants sacrifice the sanitary practices in order to increase the speed of available service.

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