



RATINGS OF THE HYGIENIC CONDITIONS AND VERIFICATION PROFESSIONAL COMPETENCE EMPLOYEE IN COMMON FOOD SERVICES

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ABSTRACT

The general food legislation is a key element in creating systems for food safety and food. Its observance, particularly the general hygiene requirements, a prerequisite for the introduction of the HACCP system, and thus the overall safety of food preparation. The level of hygiene in catering premises reflects the responsibility of their management to food safety and also demonstrates the willingness of management to gain the favor of customers. In providing common food services and catering services to the public is always a danger of contagion that can spread the food, but also finished products. To avoid this possibility, it is necessary to apply the rules of hygiene. Establishments which provide catering services must meet the requirements to ensure the health of boarders. The common food services are very strict controled and is our aim to provide pointers on how to minimize risk and liability. Very dangerous is also bacterial transfer rates between hands and other common surfaces involved in food preparation in the kitchen. In our work we were rating the hygienic conditions and also verificating professional competence employee in common food services by using the modern methods like 3MTM PetrifilmTM.

Keywords: common food services, catering services, 3M™ Petrifilm™

INTRODUCTION

Practicing proper food safety methods and maintaining food safety in the food industry is critical for the consumer. Food borne illness poses a risk whether an individual dines at home, at a restaurant, or at an elegant catered event. Proper food safety techniques and food handling must be practiced in order to protect the consumer from serious consequences. Food borne illnesses have resulted in thousands of deaths and hospitalizations (**Yasuda, Tomohide, 2010**).

Food borne illnesses, even today, continue to be a major public health problem in both developing and developed nations. Food handlers play an important role in ensuring food safety throughout the chain of production, processing, storage and preparation. Health of food handlers is of great importance for maintaining hygienic quality of food prepared and served by them (**Bobhate et al., 2011**).

The mishandling of food and the disregard of hygienic measures enable pathogens to come into contact with food and, in some cases, to survive and multiply in sufficient numbers to cause illness in consumers. Personal hygiene and environmental sanitation are key factors in the transmission of food borne diseases. The health of the food handlers is of great importance for maintaining the quality of food prepared and served by them (**Mohan et al., 2006**).

In recent years, there has been an increasing trend toward the sale and consumption of prepared foods. This trend is more obvious in the urban areas, where due to the increasing population, changing lifestyle, breakdown of the extended family system, and increasing number of working women compel people to depend on "ready to eat" foods. The individuals may be able to satisfy their taste, but they pay little attention towards hygiene and food safety (**Santos et al., 2008**).

Food safety is one of the most pertinent issues in the food service industry. Food borne illness and food poisoning can be lethal and can destroy the reputation of a catering establishment. A review of the literature points out that even though catering employees may have been formally trained with a certificate of completion, they still may not routinely practice the appropriate food safety measures and practices. More research and studies need to be conducted to survey just how widespread the neglect of proper food safety malpractices

are occurring, and what kinds of remedies can be provided to make the catering service a safer food service for the consumer (Ghezzi, 2011).

As food safety continues to be an issue in the food service industry and since food borne illness outbreaks continues to happen, maintaining a healthy environment, which can eliminate the chance of any outbreaks, should be a top priority for business owners. Yet many companies do not take a proactive approach in guaranteeing that all employees are trained in this important area (Nummer et al., 2009).

Slavíčková (2005) considered as the greatest and most serious food safety risk of microbiological contamination, since there is a group of microorganisms that are in good conditions (heat, moisture, pH) in food multiply exponentially. Cause both microbial spoilage of food, respectively. their produced toxins can cause food-borne diseases in particular the emergence.

To improve food safety, hazard analysis critical control point special guidelines should be applied to school and other food service establishments to lower the microbial risks in foods served to consumer (Ryu et al., 2011).

MATERIAL AND METHODS

Research concerning the sampling was conducted in two common food services, one of which was older operating catering services since 1998 (device No. I) and the other relatively new, open in summer 2008 (device No. II). Collection of all samples in both facilities took place during one year. Samples were collected from operating (5x) and the time during business hours (5x). Samples 1-5 were collected in the device No. I and samples 6-10 were collected in the device No. II. Research was conducted in the district Považská Bystrica.

The basic material for sampling swabs from two different common food services were 3M™ Petrifilm™ plates in a total of 100 pieces for the determination of the Total plate count, 100 for the determination of bacteria of the family *Enterobacteriaceae* and 100 for Coliform bacteria. Petrifilms were marked with numbers from 1 to 10 according to the number off he sampling sites (Tab 1) then were stored in the refrigerator, wrapped in aluminum foil to prevent possible contamination of the environment and exposure to light radiation.

Table 1 Sampling sites (surface) from which was sampling swabs

	Sampling sites (surface)
1	table for the preparation of meat
2	wall near the table
3	knife for meat
4	carving forks
5	pot (inside)
6	refrigerator (inside)
7	wall - dry storage
8	rack - dry storage
9	bar - a counter
10	worker's hands

For the examination of professional competence of employees worked in (devices No. I and No. D), we conducted a test. For the 50 employees of the caterers worked at various jobs was made test containing 30 questions. Each question had three possible answers, of which one was always correct. The criterion for the evaluation tests, was chosen a working position of employees and individual range of issues.

Table 2 Areas of questions for employees

	Topics
1	Personal Hygiene
2	Control of existing legislation
3	Mastery of basic concepts in the area caterers
4	Basics of sanitation in the food
5	Compliance with good manufacturing practice
6	Fundamentals of Epidemiology

RESULTS AND DISCUSSION

The Total plate count results suggest that most at risk of sampling time period was during the operational period. All the limit value of the Total plate count were just

abstractions from this time. In the device No. I was threshold exceeded 7 times at this sampling sites:

- table for the preparation of meat - 3x, samples No. 1,3 and 4
- knife for meat - 2x, samples No. 1 and 4
- pot (inside) - 2x, samples No. 1 and 4

In the device No. II was threshold exceeded 5 times at this sampling sites:

- pot (inside) - 1x, samples No. 10
- rack - dry storage - 1x, samples No. 7
- bar - a counter - 1x, samples No. 7
- worker's hands - 2x, samples No. 7 and 10

A similar result was reached in the evaluating of the number of bacteria from the *Enterobacteriaceae*. Threshold number of bacteria of the *Enterobacteriaceae* was exceeded 2x in the device No. I and 2x in the device No. II. To exceed the permitted levels always occurred during the operational period.

Threshold number of Coliform bacteria was exceeded 3x in the device No. I and 2x in the device No. II. To exceed the permitted levels was only one exception (sampling No. 8) during business hours.

For the generation of of knowledge relating to verification of professional competence of employees, we were ready to test according to the legislation submitted 50 employees, of which were 16 cooks, 24 waiters and 10 temporary workers. The best results achieve cooks. From 16 cooks 12 (75%) answered to within 0 to 3 mistakes. Four cooks (25%) answered to within 3 to 6 mistakes. None of the cooks had 6 or more incorrect answers. From the total number of 24 waiters 14 (58%) answered to within 0 to 3 mistakes. In a group of waiters 33% (8 waiters) made 3-6 mistakes and 9% (2 waiters) made more than 6 mistakes. Low competence, we have seen in the category of temporary workers, where up to 60% (6 temporary workers) responded to 6 or more questions incorrectly. Conversely, only 10% (1 seasonal worker) responded to within 0 to 3 mistakes. Questions in which employees did most mistakes were in the topic " Control of existing legislation " and " Compliance with good manufacturing practice ". Best in the test were again cooks and the worst temporary workers.

Beneš (2008) in their study indicated that the hygienic environment of most every culinary equipment depends on knowledge, personal motivation of each individual worker

and rigorous daily monitoring by the operator. **Suková (2002)** points out that the results of control force of the implementing sanitation that are available for a relatively short time, have the meaning that on that basis may, in case of adverse findings repeat the whole sanitation process, or as required to adjust some of its stages. This may include a longer exposure to detergent, change cleansers or change its concentration. **Salgovičová (2008)** in their results indicate that the routines of cleansing and disinfection has proved largely ineffective, particularly against G + genera of bacteria (staphylococci and enterococci), which may indicate their potential resistance to existing sanitation practices.

This study poses agreement to **Griffith's et al. (2010)** study concerning food safety culture. An individual's age and amount of experience relates to their knowledge in performing certain safety practices. The present study also agrees with the findings of **Yiannas (2009)** in that management must be more vocal and strive to create a positive culture. This study found that management tends to have more training in food safety than non-management personnel. The lack of training for non-management personnel can pose a tremendous detriment to a catering group since these individuals come into direct contact with the food presented to the consumer. In order to ensure that food safety practices are in place and that they are being adhered to, management must take a leadership role in providing training regiments to all members of its staff (**Ghezzi, 2011**).

Personal hygiene was found to be significantly associated with education status (**Ud giri et al., 2007**). Similar findings were observed in a study done in New Delphi by **Malhotra et al. (2007)**.

CONCLUSION

Our results suggest that the hygienic quality of common food services is different. It depends mainly on the operating time of devices when operating time before we found that the limit values of the number of bacteria in one case and at the sampling site - table for the preparation of meat. For withdrawals during the operational period we have seen exceeded a threshold number of bacteria and repeated several times on the same sampling sites. Risk sampling sites were: table for the preparation of meat, meat knife, forks, pots inside, dry storage rack, and not least the hand of the worker. Another important factor hygienic quality common food services is that whether it is a newly opened facility, or older equipment. For older equipment, we have seen more than the limit value the newly opened. Failure to comply with specific health requirements, inadequate competence of the employees also contribute

to ensuring safe food production in the newly opened.. Large gaps in skills that we have seen were especially in employees who had the lack of the education and employees worked as temporary workers.

Risk factor in respect of general and special conditions of hygiene in common food services, GMP are mainly the employees themselves. It is therefore necessary to ensure that personnel are adequately qualified and technically competent.

Some of the analyzed sampling (swabs) expressing the Total plate count, the number of bacteria of the family *Enterobacteriaceae* and Coliform bacteria and did not meet the criteria were exceeded their limits. It is therefore necessary to ensure food safety and consumer health ever conducted in common food services targeted control of environmental hygiene and food preparation, quality of incoming raw materials inspection and regular training and medical fitness of all employees.

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