

An Innovative Approach to Food Safety Training for Temporary and Retail Operations

Robert Mancini

Integrated Management Systems Coordinator, Canada

***Corresponding author**

Robert Mancini MSc, CPHI(C), Integrated Management Systems Coordinator, Canada; Tel: 204-885-0638, E-Mail: robert.mancini6@gmail.com

Submitted: 10 Apr 2019; **Accepted:** 03 May 2019; **Published:** 14 May 2019

Food safety training is an integral component in the public health system designed to prevent the incidence of foodborne outbreaks. However, there is a lack of evidence that food safety training programs directly result in improved food hygiene. The majority of food safety courses are delivered in classroom settings or on-line with no practical component. To assess knowledge of students, a written examination is often required to obtain certification. This training is inadequate as it reflects poor training designs that focus only on producing certified personnel rather than paying attention to achieving competency in food hygiene practice [1,2]. Food safety training leads to an improvement in food safety only if the knowledge imparted results in a positive change in behaviour [3].

One key principle of adult learning is that information retention is directly influenced by the amount of practice during the learning process [4,5]. However traditional food safety training courses are not delivered in this fashion. The provision of knowledge to change food safety attitudes and behaviours has not been adequately proven in the literature [3]. An effective food training course should not only provide food safety information, it should also implement knowledge into practice for proper retention. Rennie suggests that training programs that are more closely associated with the work site coupled with practical reinforcement of hygiene messages are more effective than traditional methods of training [6]. Practical in-house, hands-on activities tend to be the most effective approach in training, although more research is still needed to confirm this [7-9].

The goal of this initiative was to provide an alternative model to the traditional format of food safety training. The hands-on program was initially developed for temporary food service events in Manitoba (Canada) and in particular to address comprehension concerns with English as Second Language (ESL) learners. The Program was later modified and piloted for Target Corporation, a large food retailer in the United States. Both implementation processes are described below.

Temporary Food Service Event- (Winnipeg, Manitoba)

The food operator and event coordinator for each pavilion participated in learning. The hands-on, food safety training was two hours in length and covered all facets of food preparation and food service practices, including but not limited to:

1. How to use a metal stem probe thermometer to test internal

food temperatures, including ice bath calibration. A food safety poster depicting safe food internal temperatures was left on-site for ease of reference.

2. How to prepare a chlorine-based sanitizer at 100 ppm for effective sanitation. A laminated sticker displaying the color comparator for strength concentration was given to the operator for reference. The sticker was designed so that it could be adhered to a bucket or spray bottle.
3. How to perform utensil and pot washing using the 3-compartment-sink method.

A commercial kitchen was used as the venue for the hands-on training. The kitchen divided into 8 food safety stations.

Food Safety Stations	
Station 1	Personnel practices
Station 2	Handwashing
Station 3	3-compartment sink method
Station 4	Temperature control part 1
Station 5	Refrigerator organization, allergens
Station 6	Temperature control part 2
Station 7	Cleaning and sanitation
Station 8	Record keeping

There were 92 ESL students that participated in the hands-on food safety training. In an attempt to accommodate all participants, two separate sessions were offered, each with a class size of 46 participants. The participants were divided into small groups and each group began at a different station. All stations were manned by a Certified Public Health Inspector and/or a food safety specialist who facilitated the activities. The groups rotated through the stations every 15-20 minutes. The time at each station was strategically kept short and entertaining to keep participants engaged.

Each station was equipped with a flip chart to assist the facilitator in conducting the training. The charts consisted of compelling pictures, stories and real-life case studies. A number of behavioral science techniques were employed in the training to ensure participant engagement and knowledge of the presented materials. Such

techniques included the use of storytelling, sharing real-life stories of food borne illness, neural encoding (rhymes), and incorporation of the principles of consistency and commitment as a means to improve food safety behaviours.

At the end of the training, each participating pavilion was given a food safety package that included the resources necessary to ensure food safety such as chemical sanitizer test strips- chlorine and quaternary ammonia, hair nets, log sheets, and thermo label test strips.

The participants were given a Certificate of participation and subsequently asked to fill out an evaluation form for feedback, no exam was administered. The comments on the evaluation forms were overwhelmingly positive and encouraging that the Program be adopted and administered every year thereafter.

Major Food Retail Operation Pilot Hands-on Food Safety Training (Pasadena, California)

The hands-on food safety program was piloted for a major United States Food Retail Corporation to determine its' effectiveness for a large scale food retail operation.

The implementation of the food safety training program was similar to the temporary food service event scenario, however, instead of a commercial kitchen, a classroom was used as the training venue for logistical purposes. Further, the participants were granted a recognized food safety Certificate, valid for 5 years, upon successfully passing an exam. The exam was administered through the National Registry of Food Safety Professionals headquartered in Orlando, Florida. A food safety guide, a folder consisting of short and concise food safety reference information, was also distributed to the participants.

The room was divided into six food safety stations and participants rotated through the stations (20-25 minutes) engaging in hands-on activities. Two food safety experts facilitated the training. Since the purpose of this training was to certify the participants, a PowerPoint presentation (two hours) was also delivered for information that could not be instructed via hands-on. The group of 34 participants were divided in half and while half of the participants engaged in the hands-on component, the other half were taught via PowerPoint. After two hours, the groups switched. The PowerPoint presentation incorporated less verbiage and allowed for more pictures, videos, and stories in an effort to make it more compelling.

The food safety stations were as follows:

Food Safety Stations	
Station 1	Hazards, cross-contamination
Station 2	Handwashing, personal practices, microbiology
Station 3	Temperature control 1, temperature control 2
Station 4	Cleaning and sanitizing
Station 5	Logs and pests, receiving
Station 6	Equipment and Jeopardy game

Pasadena, California was chosen as the site for the pilot due to its high numbers of ESL students. The pass rate for the class was 94%, significantly higher than any previous years using the traditional food safety training that was strictly classroom-based. Participant

evaluations were overwhelmingly positive.

Lessons Learned

The hands-on food safety training program was a success, however, logistically a large class size (>20 participants), made implementation of the training more complex and difficult. In such cases two trainers are necessary to facilitate the hands-on activities, which some jurisdictions may not have adequate resources for. Further, to obtain food safety certification participants are required to take a multiple choice exam which is typically not psychometrically designed. To better assess participants, it is the author's opinion that a performance test would be more appropriate in assessing knowledge of the presented material.

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