

**A Survey of Food Handler Training Effectiveness and Its
Impact on Behavioral Change in the Workplace**

June 28, 2024

Introduction

The Conference for Food Protection (CFP) has conducted a two-year study of food handler training offered to individuals who work in retail food establishments. The final phase of this study was a survey of professionals working in the retail food industry, state and local regulatory agencies, academia, and consumer organizations to identify how and when the effectiveness of food handler training was measured and how trainers and those responsible for training determined the extent to which the training influenced behavioral change by food handlers in the workplace.

Survey Methodology

A survey was sent to 269 CFP members who are employed in one of the following constituent groups:

- State, Local, and District/Territory Regulators.
- The Food Industry comprised of:
 - Food Service including restaurants of all types and sizes, caterers, and institutional facilities
 - Retail Food including grocery stores, supermarkets, convenience stores, retail pharmacies, produce markets, roadside stands, department stores, warehouse sales clubs, seafood markets, retail bakeries, military base PX/groceries, liquor stores, and retail food associations.
 - Processing business entities that manufacture, process, package, or label food items for wholesale sale.
 - Vending and Distribution businesses that vend or distribute food either wholesale or retail.
 - Food Industry Support that provides direct or support services to food service establishments, retail food establishments, processing food operations, vending and distribution food operations, or regulatory agencies.
- Faculty who teach and/or conduct research involving food sciences, food operations, or food safety.
- Agents or executives representing consumer advocacy organizations supporting food safety, food wholesomeness, allergen awareness, food policy matters, and food standards and guidelines.

The individuals selected to participate in the survey were chosen because they could potentially deliver food handler training, oversee food handler training programs, provide support to food handlers during training, or provide support to or oversee food handler training in the workplace.

Seventy-one individuals responded to the survey. This is a response rate of 26 percent, which is typical for an unsolicited survey. It is also expected that the survey was sent to some individuals who were not directly or indirectly involved in food handler training which made them unable to provide valid responses to the items in the survey.

Survey Limitations

Only members of the Conference for Food Protection were invited to participate in the survey. While the focus of CFP is on retail food safety, sending the survey to a larger number of individuals could have produced additional information and different perspectives.

Survey Results

A breakdown of survey responders by the type of company/agency/organization they work for is provided below:

Table 1 A breakdown of Survey Respondents by the Type of Company/Agency/Organization Where They Work.

Type of company/agency/organization	Number of Responses	Percent of Total Responses
Industry - Food Service	16	23%
Industry Retail	21	30%
Industry Processing and Distribution	0	0%
Industry Support	6	8%
Regulatory – State	14	20%
Regulatory – Local	9	13%
Academia	0	0%
Consumer	1	1%
Other	4	5%
Total Responses	71	100%

The respondents who selected the “Other” option in table 1 indicated they were employed by a digital company supplying food safety training (Food Handler, Allergy, Certified Food Protection Manager), a consulting firm, consumer facing robotic food vending equipment, and a member of the CFP project team.

Role Performed by Survey Respondents

The respondents were also asked to identify their primary role related to food handler training in the company/agency/organization they work for. A summary of the responses for this item is presented in Table 2.

Table 2. A Breakdown of the Role that Survey Respondents Perform at Their Company/Agency/Organization.

Role Performed	Number of Responses	Percent of Total Responses
I provide food handler training for a retail food establishment	13	18%
I work for a vendor that provides food handler training for retail food establishments	1	1%
I oversee the food handler training that is offered by my company/agency/organization	38	54%
I'm responsible for hiring the vendor that provides food handler training for our employees	1	1%
Other	18	26%
Total	71	100%

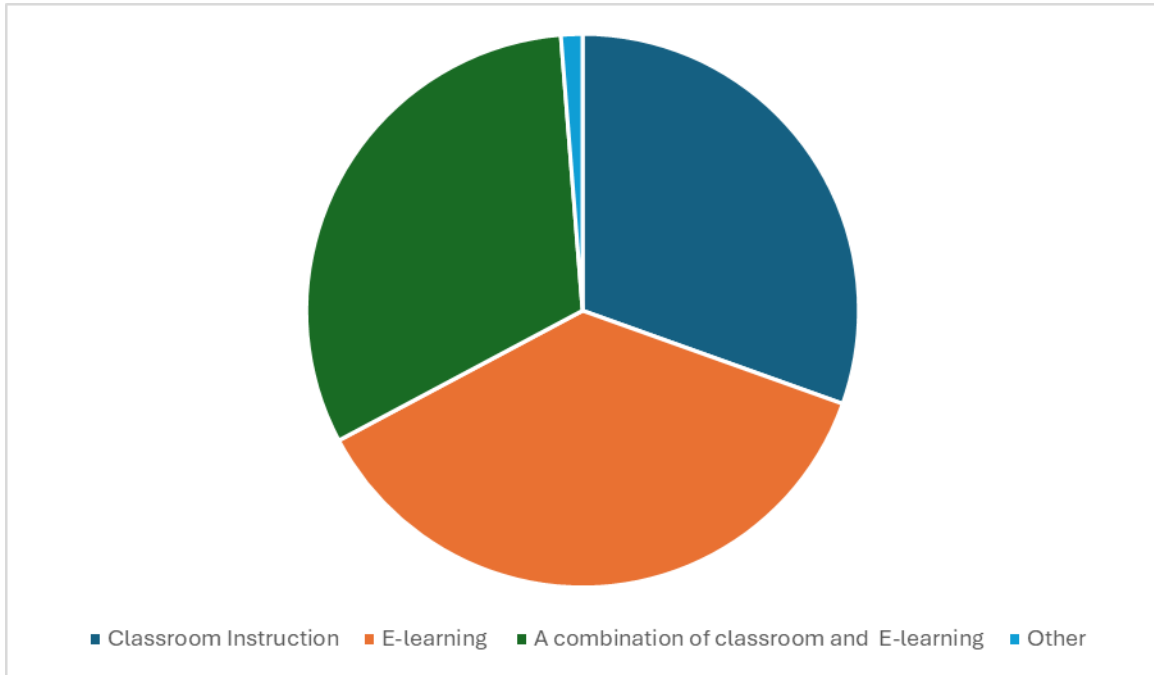
The respondents who chose the “Other” option presented in table 2 indicated they played the following roles in food handler training:

- We collaborate with independent vendors to provide classroom space to teach food safety courses at the Health Department.
- Our regulatory agency verifies that food handlers follows the Food Code.
- As a Food Safety Specialist, I am required to provide food safety training to multiple levels of retail associates.
- I troubleshoot issues with the administration of the food worker testing on a Call Center line.
- ServSafe Food Handler training was provided during the safety segment of orientation when I was an onsite QA Manager. I was there to provide clarification if needed.
- Ensure all food employees are trained within 60 days of hire and the training is delivered by an accredited source.
- Oversee the Accreditation of food handler training programs approved by the department for use in the jurisdiction.
- I work with our Global Training Department to ensure compliance, developing and driving internal training to further support food handler training.
- We provide a list of food handler course options.
- I oversee all food handler training in the state along with the rules that govern it.
- I provide training in store on Food Safety and am a proctor.
- Research project staff.

Methods Used by a Company/Agency/Organization to Provide Food Handler Training

Respondents were asked to identify the method or combination of methods their employer used to provide food handler training.

Table 3. Method(s) Used to Provide Food Handler Training



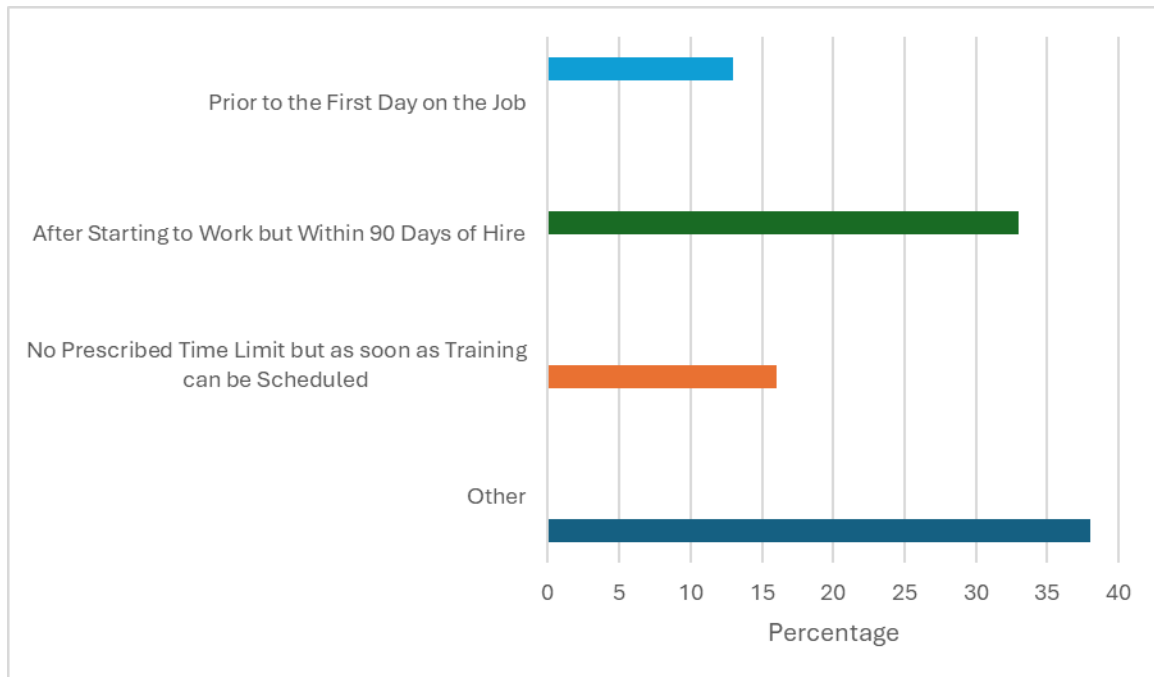
The type of training provided for food handlers was about equally divided between classroom instruction, E-learning using online or computer-based instruction, and a combination of classroom and E-learning. The respondents who chose the “Other” option for this question indicated they used the following methods to provide food handler training:

1. In store, inservice, in the moment, and on the job training (5 responses)
2. Educate food handlers when doing inspections.
3. Provide training during monthly Teams meetings to provide food safety updates to Store managers and District managers to convey to their staff.
4. Targeted training as needed.
5. Compliance with food handler training required by the local health authority
6. Short targeted topics and practical demonstrations on the production floor
7. Hands-on, in person food safety training/guidance for independently owned restaurants
8. Disseminate a printable Food Safety Training booklet in 13 languages
9. Both in-house approved training and training provided by a third-party
10. On site mentoring
11. We allow the course to be delivered both virtually via E-learning and in the classroom.
12. In-person visit to County Health Department
13. Training Program is provided via a DVD/Flashdrive

When do Food Handlers Receive Food Safety Training?

Thirteen percent of the respondents indicated that food handlers receive training before their first day on the job. Thirty-four percent indicated food handlers receive training within 90 day of their hire date. Sixteen percent indicated there was no prescribed time limit, but food handlers were trained as soon as the training could be scheduled.

Table 4. When Food Handlers Receive Training



Thirty-eight percent of the respondents selected “other” for this question. The respondents who chose the “Other” option for this item provided the following comments related to when training occurred:

- It could be all of the above depending on my client’s preferences.
- Regulatory agency employees (inspectors) are trained but not as food handlers.
- It varies, as some training is provided prior to serving customers or food handling, but ongoing training is provided throughout employment.
- After starting to work but within 10 days of their hire date.
- Key concepts reviewed at hire (associate health, personal hygiene, etc.), leadership, and fresh department - within 10 days of hire, front end/grocery - within 30 days
- Required by state law within 14 days of hire.
- Within 30 days of employment and prior to expiration of certification.
- The state requirement is within 30 days of hire.
- Food Code states within 30 days of hire.
- Within 60 days of hire.
- Depends on the job code. Hourly are expected to receive training on the first day on the job. Salaried associates are expected within the first 30-60 days.

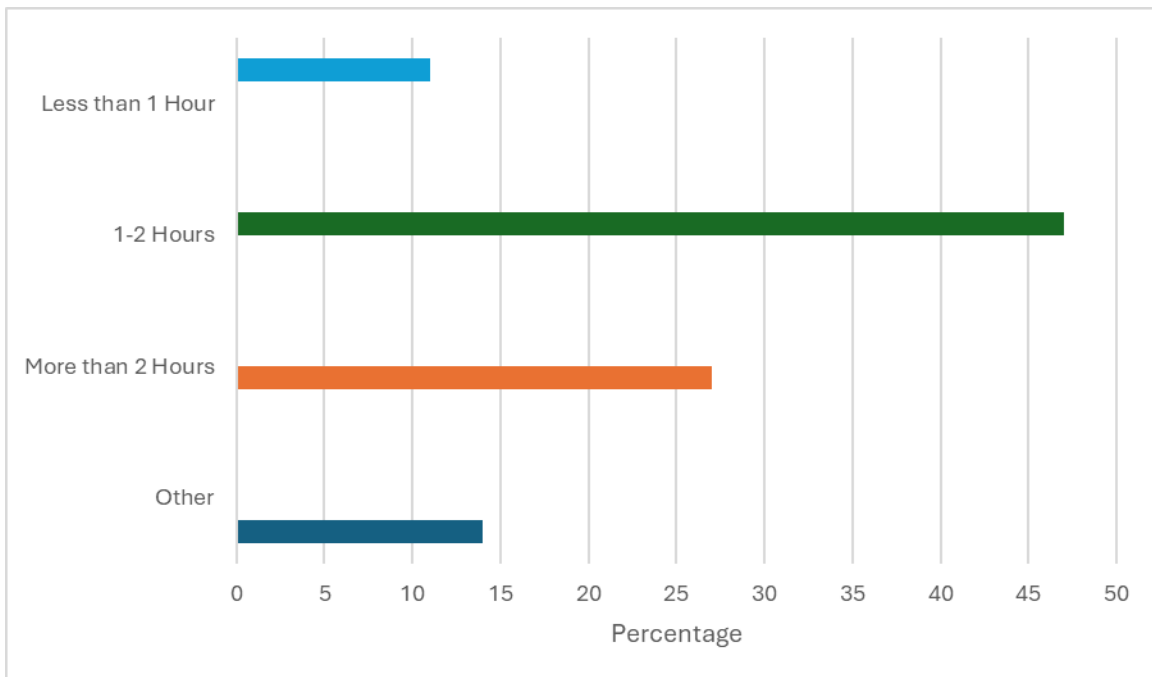
- We advise to follow state or local jurisdiction requirements or company standards.
- They acquire training when required by the local regulatory authority.
- At new hire orientation and annual training.
- Independently owned restaurants provide food safety training - typically from another tenured food handler - as new food handlers work in-position; there is no formal training (online or classroom) prior to starting work.
- Required to be certified prior to hire, food safety training once hired as part of the onboarding, in-store training within next 90 days.
- During onboarding.

Based on the survey results, training is usually provided soon after employees are hired and in nearly all cases within 90 days of their hire date. In some instances, food handler training is scheduled to meet employer requirements and in other cases the training is scheduled to comply with regulatory requirements in the jurisdiction.

Length of Food Handler Training Programs

Forty-seven percent of respondents indicated their food handler training programs lasted between 1 and 2 hours while 28% of the respondents indicated their training program lasted more than 2 hours. Eleven percent of the respondents said their food handler training program lasted less than one hour.

Table 5. Length of Food Handler Training Programs



Fifteen percent of the respondents selected the “Other” option for this item. They offered the following comments as additional information for this item:

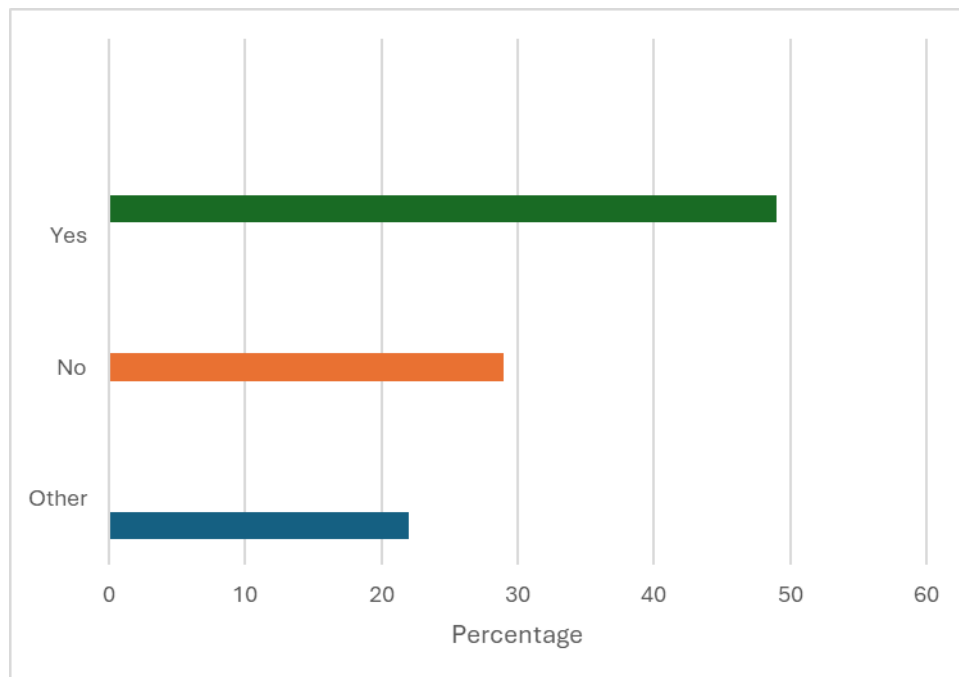
- We defer to the local jurisdiction. Usually 2 hours.
- Formal classroom training is 90 - 120 minutes, short huddles are about 5 - 10 minutes and occur throughout the year based on observed food safety non-conformances.
- Indeterminate as the training is ongoing/cumulative.
- The maximum accredited program must not exceed 2 hours.
- This varies according to state requirements.

Most food handler training programs last two hours or less regardless of the type of instruction. The length of training is usually set by company policy or to meet regulatory requirements.

Does Your Regulatory Jurisdiction Require a Specific Training Program and/or Duration of Food Handler Training?

Respondents were asked if the regulatory jurisdiction(s) where their establishment(s) are located require a specific food handler training course and/or length of training. Nearly half of the respondents answered yes, one fourth answered no, and one fourth answered “other” to this question.

Table 6. Does Regulatory Jurisdiction Require a Specific Training Program and/or Duration of Food Handler Training Program



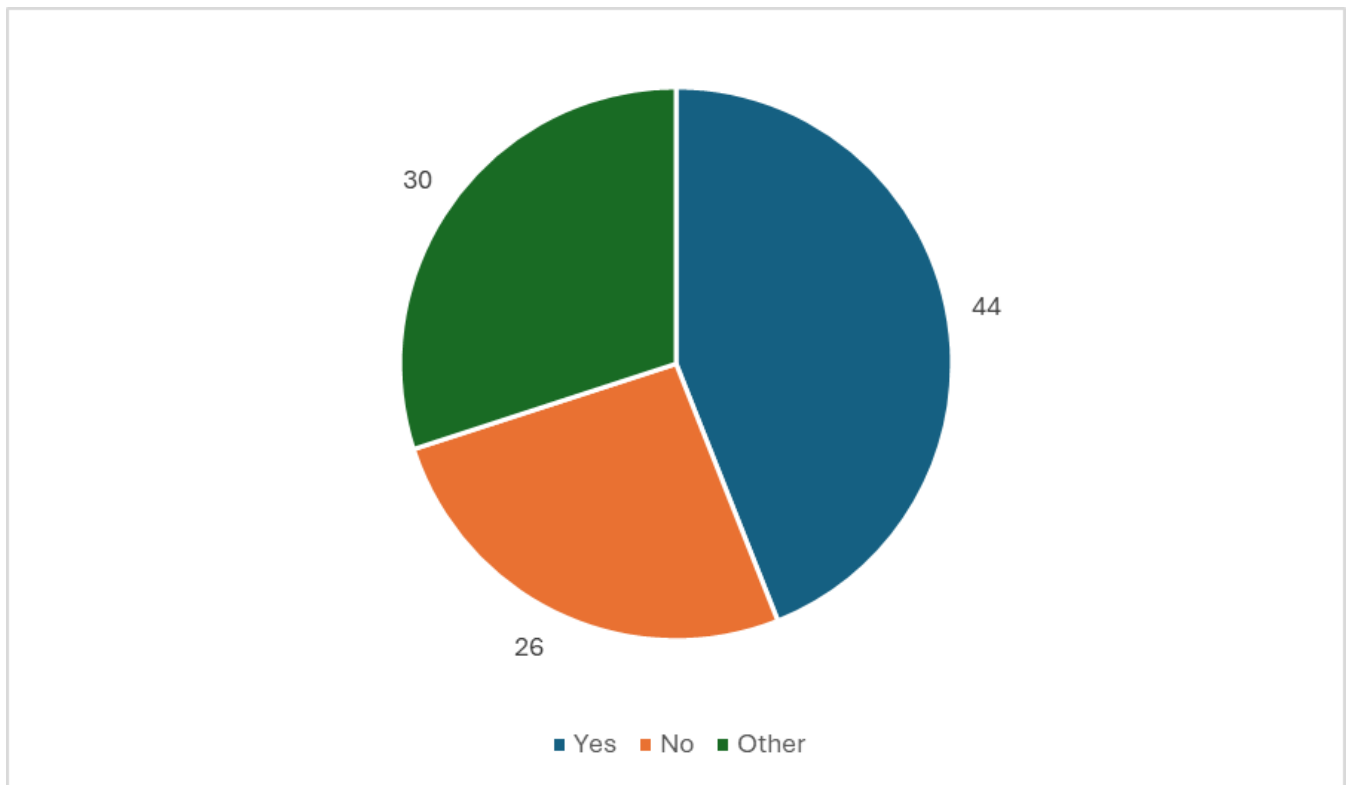
Respondents who selected the “other” option for this question indicated that some regulatory jurisdictions have this requirement but not all. Another respondent indicated the regulatory requirements are often unique to a particular jurisdiction and can vary widely from one jurisdiction to another. This makes training a challenge for companies that operate across

multiple jurisdictions. The variability of training requirements also makes tracking food handlers and whether or not they have met training requirements difficult.

Are Food Handlers Who Work for Your Company/Organization in Your Jurisdiction(s) Required to be Certified?

Forty-four percent of the respondents indicated regulatory agencies require food handlers to be certified, twenty-six percent of respondents indicated that regulatory agencies in their jurisdictions didn't require food handler certification, and thirty percent of the respondents selected the other option.

Table 7. Are Food Handlers Required to be Certified?

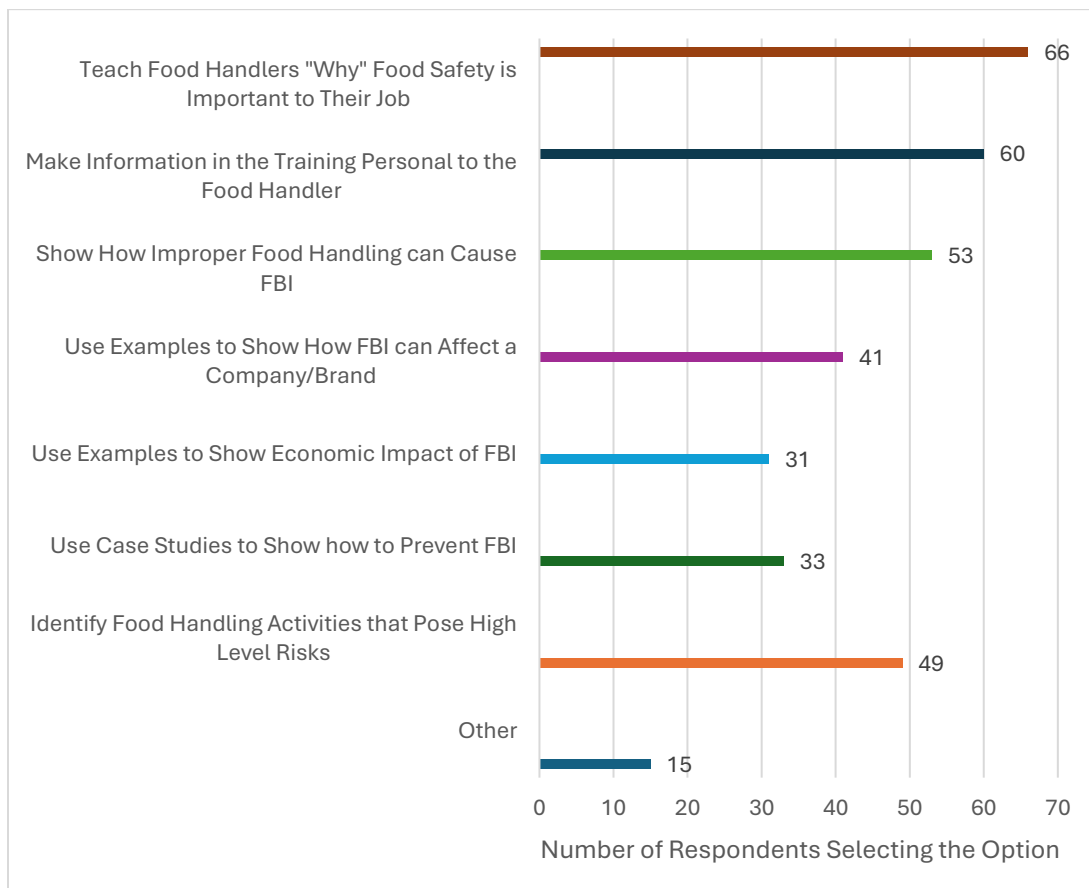


Typically, the food handler program is considered a certificate program and not a certification program. Respondents who worked for companies that had establishments in multiple locations indicated some jurisdictions require certificates, others don't. In all instances respondents indicated when food handler certificates are required by a jurisdiction, they will comply.

What Elements Does Your Food Handler Training Program use to Positively Influence Behavioral Change?

The purpose of this question was to identify the type(s) of information and activities in a food handler training program that are intended to prompt food handlers to follow safe food handling practices in the workplace. This included teaching food handlers why safe food handling is important to their job, how improper food handling can cause serious consequences to themselves and their employer, and how certain food handling activities are the most critical for reducing the risk of foodborne illness and allergic reactions.

Table 8. Elements in Food Handler Training that Positively Influence Behavioral Change



The numbers presented in table 8 reflect the number of respondents that selected each option. For this question, respondents were allowed to check more than one option. The top four responses to this question were:

1. Teach food handlers "why" food safety is important to their job, especially for the younger associates who are becoming involved in food preparation (93%).
2. Make information in the training personal by highlighting how failure to correctly follow food safety principles and practices can adversely affect their customers and themselves (85%).
3. Use real world examples to show how failure to follow approved food safety principles and practices can cause foodborne illness or allergic reactions (75%).

4. Explain the context of higher-level risks of certain food handling activities in the workplace - for example, it is more important to wash hand than clean walls and floors (69%).
5. Use real world examples of how past foodborne disease outbreaks have adversely affected the reputation of the company/brand where the outbreak occurred (58%).

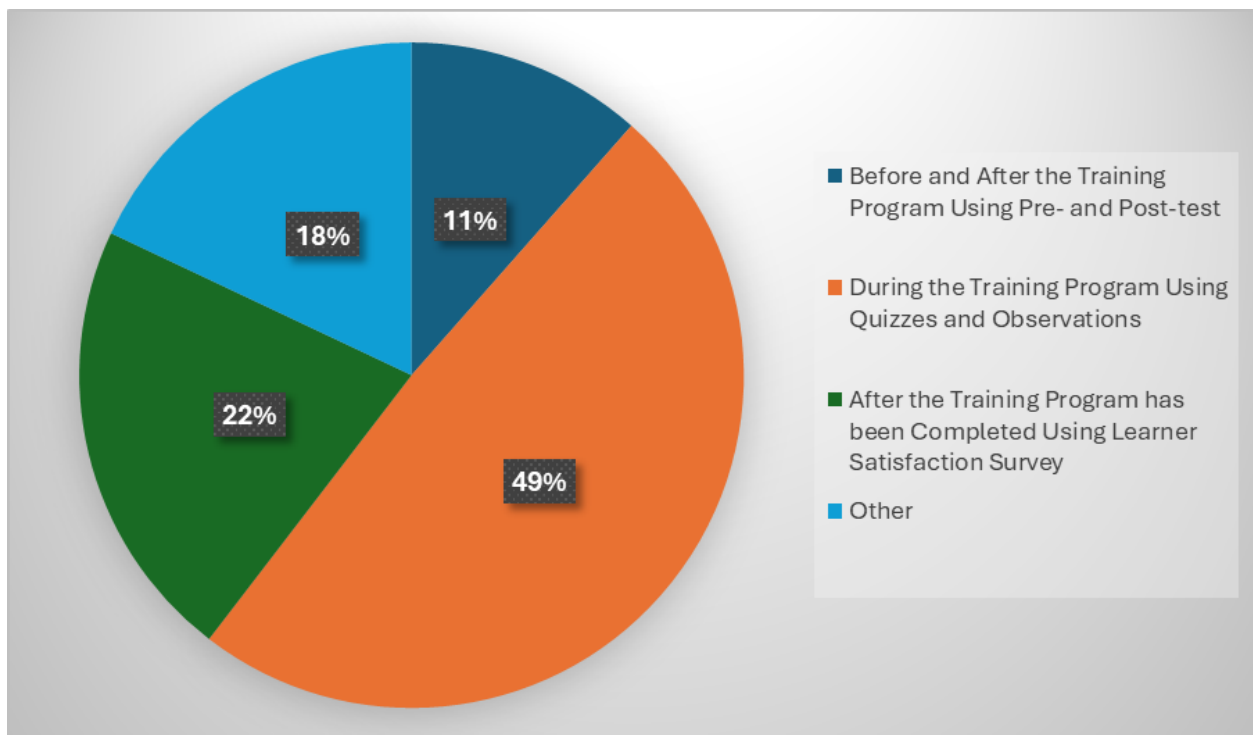
Respondents who selected the “Other” option offered the following comments about the content of their training that could positively influence food handler behavior in the workplace:

- Use real life scenarios and demonstrations to show how cross contamination can happen.
- We are actively trying to incorporate a "Food Safety Culture", not just to follow rules.
- Emphasis on employee health reporting, hand washing, fecal-oral route, allergens etc.
- Include separate food allergy on-line training session as well.

When the Effectiveness of Food Handler Programs is Evaluated

Survey respondents were provided three options to identify when they measured the effectiveness of their food handler training program. A fourth “other” option was provided for respondents to use when none of the options provided accurately identified when they evaluated the effectiveness of their training program. The times when food handler programs were evaluated is summarized in the table below.

Table 9. When the Effectiveness of Food Handler Training Programs are Evaluated



Approximately half of the survey respondents indicated they evaluated the effectiveness of their food handler training programs during the program using periodic knowledge checks, quizzes, or observations. The second most commonly reported time for evaluating training program effectiveness was after the training program was completed using a learner satisfaction survey. Eleven percent of the respondents indicated they evaluated the effectiveness of their food handler training program using pre- and post-tests.

Respondents who chose the “Other” option for this question provided a variety of comments regarding when the effectiveness of training is assessed. A summary of these comments is provided below:

- We rely on health inspection and third-party audit scores and visits by our food safety team to tell us if our training has been effective at teaching the correct content.
- Internal store audits - behavior based questions included which engage directly with front line associates.
- We offer a post test at the conclusion of the training course.
- During follow-up visits we observe food handlers to gauge if the recommendations/guidance presented during training is being implemented.
- Post training reinforcement questions through our learning management system (LMS).
- On the job to see if following and apply corrective action, coaching.
- Quizzes during pre-shift meetings that incentivize participation and correct answers.

Metrics Used to Measure the Effectiveness of Food Handler Training Programs

Survey respondents were provided several options for metrics that can be used to measure the effectiveness of training. They were asked to identify which of the options their company/agency/organization used to measure the effectiveness of their training programs. Their responses are summarized in the table below.

Table 10. Metrics Used to Measure the Effectiveness of Food Handler Training Programs



The respondents who chose the “Other” option for this question provided the responses that are summarized below:

- Quizzes during pre-shift meetings that incentivize participation and correct answers.
- Review inspection reports with documented violations by food handlers.
- Use in-store audits.
- Ask staff to demonstrate knowledge and skills taught during courses by asking them questions and watching them perform duties.
- We review multiple pieces of information to determine the effectiveness of our training program.
- Review internal audit and food inspection reports to identify violations and trends in areas that are taught in the course.
- Not tracking at the moment.

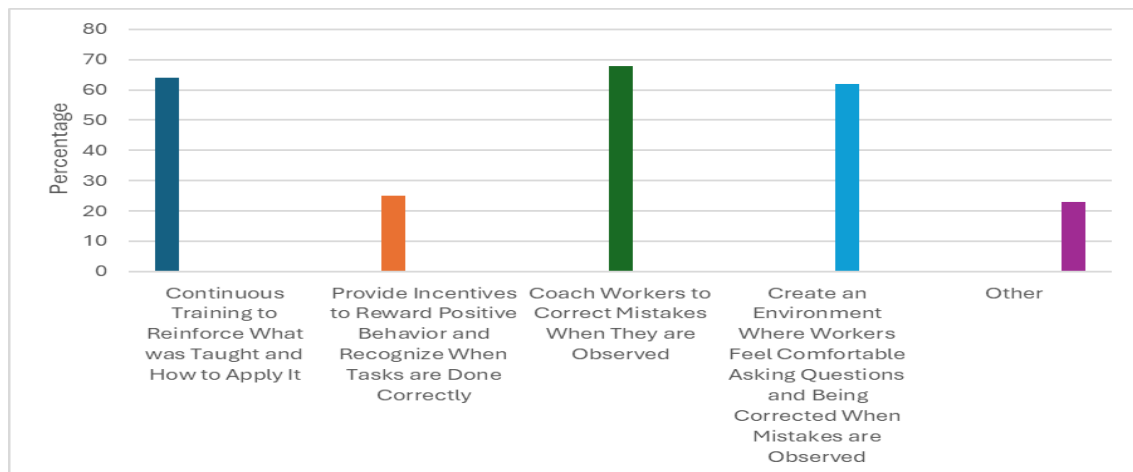
Activities Used by a Company/Agency/Organization to help Drive Behavioral Change by Food Handlers in the Workplace

The previously conducted literature search revealed the following activities can be used to positively influence worker behavior.

- Provide continuous training to reinforce what a worker has been taught and how to apply it properly in the workplace.
- Provide incentive programs to reward positive behavior, highlight achievements, and recognize when tasks are done correctly.
- Coach workers to correct mistakes when they are observed.
- Create an environment where workers feel comfortable asking questions, challenging norms, making mistakes, and being corrected.

These four activities were provided as options in the survey as well as a fifth option identified as “other” which could be used to identify what the organization was doing to facilitate behavioral change in the workplace. A summary of the reported activities is provided in Table 11.

Table 11. Activities Used to Positively Influence Behavioral Change in the Workplace



The three activities most commonly used to drive behavioral change by food handlers in the workplace were: 1.) coaching workers to correct mistakes when they are observed (67%), 2.) providing continuous training to reinforce what the worker was taught previously (64%), and 3.) creating an environment where workers feel comfortable asking questions, challenging norms, making mistakes, and being corrected (61%). The use of incentive programs to reward positive behavior was reported by only 25% of the respondents.

The respondents who chose the “Other” option for this question provided the responses that are summarized below:

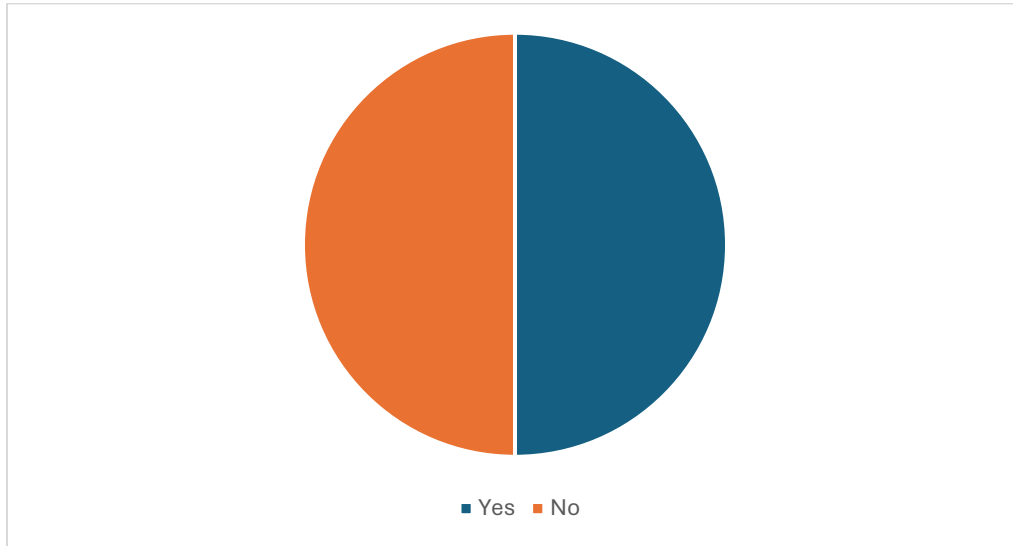
- Our Team Members receive incentives for calling out items that need attention.
- As regulators, we work to develop food safety management systems and reinforce food handling practices through education during our inspections and in the inspection reports. Regulators encourage their inspectors to speak in a manner that employees will comprehend and teach them in the way they learn.
- Governmental transparency through a highly visible placarding program showing compliance status and unredacted inspection reports placed on a public website.
- We provide information, activities, and national food safety month toolkits for food establishments to use.
- We have a workplace specific to food safety where employees can ask questions and ask for clarification on standards.
- Communications bites on our intranet focused on food safety.
- Student has the option to review answers on the test they missed and why.

The regulators who responded to the survey expressed a commitment to positively influencing food handler behavior related to food safety. They communicate with food handlers during inspections to reinforce safe food handling practices. In addition, they encourage retail food establishments to use all means available to them to create and sustain safe food handling practices in the workplace.

Does Your Company/Organization Measure the Extent of Behavioral Change Demonstrated by Food Handlers in Terms of How Well They Apply the Knowledge and Skills They Have Learned During Food Safety Training Courses?

The responses for this item were evenly split between those companies, agencies, and organizations that measured the extent of behavioral change demonstrated by food handlers as a result of their food handler training and those that did not.

Table 12. Does Your Company/Organization Measure the Extent of Behavioral Change Demonstrated by Food Handlers?



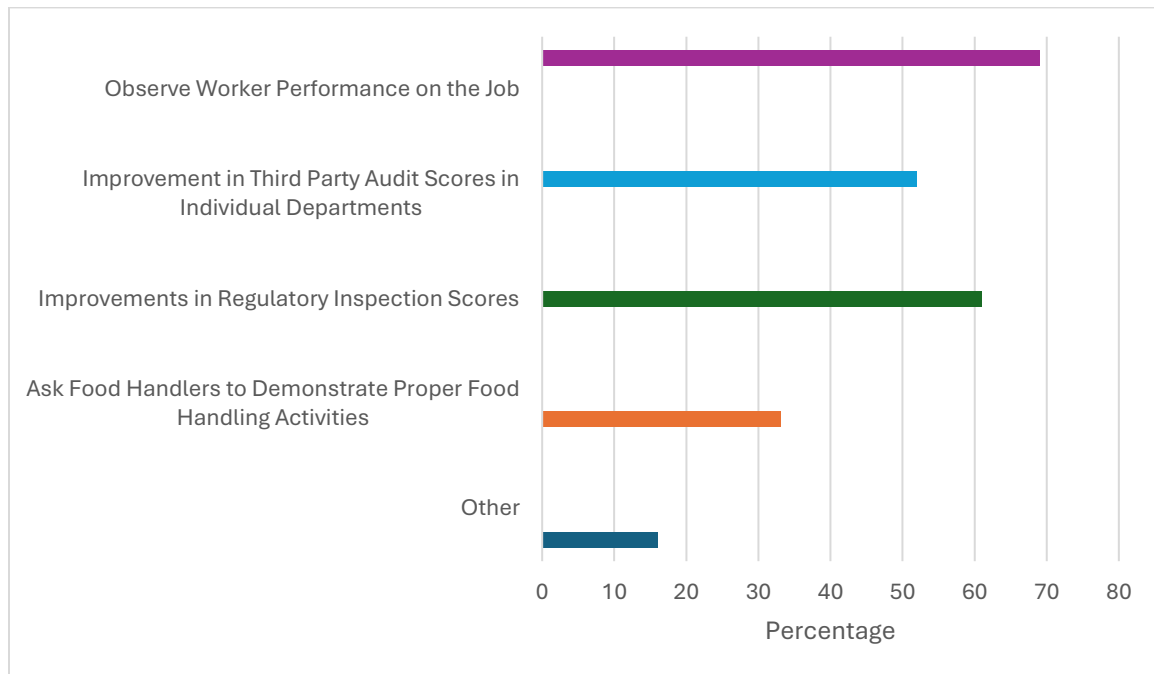
Methods Used to Determine if Training is Having an Impact on Job Performance Related to Food Safety

The respondents who indicated their company, agency, or organization measured the extent of behavioral change demonstrated by food handlers as a result of their food handler training were asked how they measured the impact the training had on a food handler’s performance on the job. The previously conducted literature search showed four activities were effective for measuring the impact of food safety training on worker behavior on the job. These activities included:

- Observation of worker performance on the job,
- Third-party audits of food safety and sanitation within individual areas and departments within the establishment,
- Improvements in retail food regulatory inspection scores,
- Hands-on demonstrations where food handlers are asked to demonstrate skills with immediate feedback.

The four activities noted above were provided as options in the survey as well as a fifth option identified as “other” which could be used by respondents to identify other activities their organization used to measure the impact of food handler training on behavioral change in the workplace. A summary of the activities reported is provided in Table 13.

Table 13. Methods Used to Measure the Extent of Behavioral Change Demonstrated by Food Handlers



Observation of worker performance on the job was the most commonly reported method for measuring the impact of food handler training on employee behavior in the workplace. This was closely followed by improved regulatory inspection scores and scores received on third-party audits.

The survey respondents who selected the “Other” for this item provided the comments summarized below:

- Worker performance is assessed during internal food safety audits within departments and individual areas of the establishment.
- Frequency of public health interventions required during routine inspections.
- Only direct action is regulatory as the FH certification is a rule requirement.
- Food violation trends report.
- Collect information during restaurant inspections.

One respondent offered the following comment which provides some insight into future research that would be valuable to the retail food industry.

“We would love to see a study showing how organizations with food handlers trained perform on routine food safety inspections and/or third-party audits versus ones that don't. Also, would be good to see data that shows whether or not jurisdictions with food handler training see an overall reduction in foodborne illness. We have heard training food handlers helps but no one has measured it yet. It's hard to pinpoint when other food safety aspects are in play, but we believe it improves food safety”.

What Items Do You Believe are Essential for Promoting Behavioral Change by Food Handlers?

The literature shows four elements that are commonly needed to promote behavioral change in the workplace. These include:

1. Buy in from leadership to support safe food handling,
2. Creating a culture in the workplace that stresses the importance of safe food handling,
3. Empowering employees to become the face of food safety in the workplace, and
4. Providing incentives to reward workers for following proper food handling practices on the job.

The four elements shown above were provided as options in the survey as well as a fifth option identified as “other” which could be used by respondents to identify other activities their organizations used to promote behavioral change by food handlers in the workplace. A summary of the elements identified is provided in Table 14.

Table 14. Items Considered Essential for Promoting Behavioral Change by Food Handlers



The three elements considered to be the most important for promoting behavioral change in the workplace were 1.) Creating a Culture for Food Safety in the Workplace (94%), 2) Getting buy-in from the leadership of the company/establishment to support safe food handling (87%), and 3.) Empowering employees to become the face of food safety in an establishment (86%). Providing incentives to reward workers for following proper food handling procedures was mentioned by 60% of the respondents, which is a lesser rate than the top three elements.

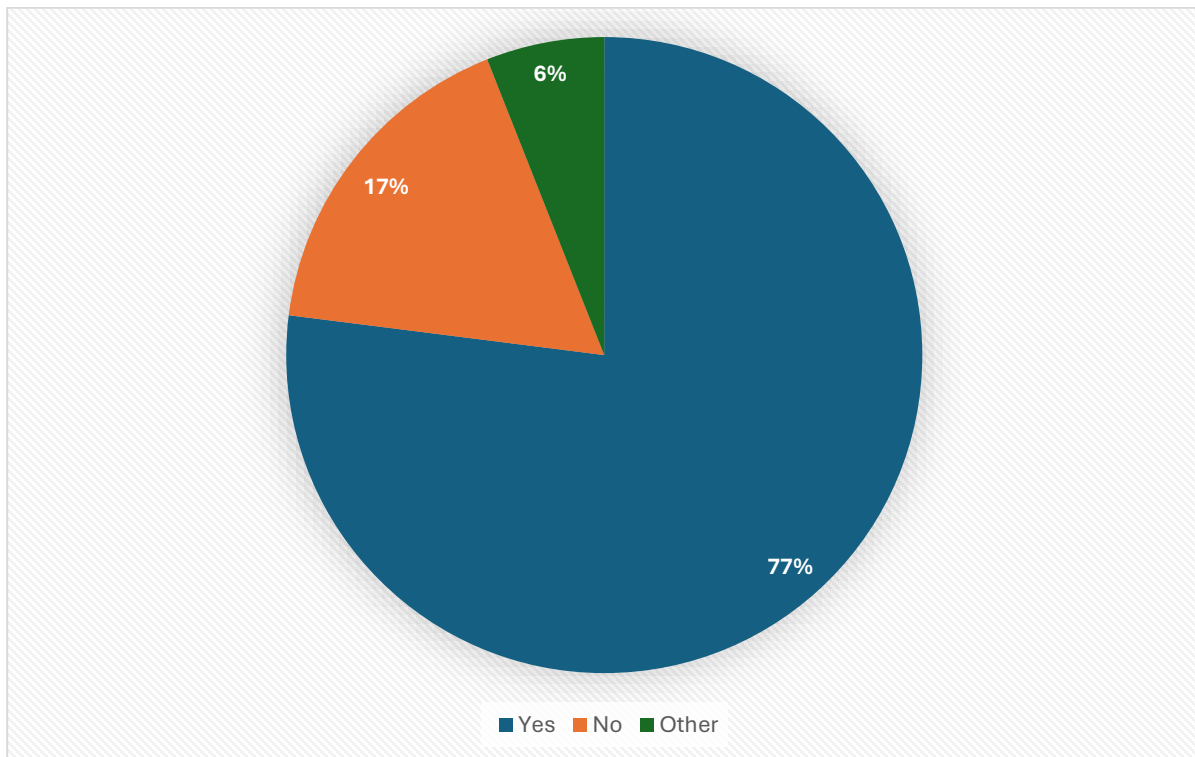
The survey respondents who selected the “Other” option for this item provided the comments summarized below:

- Leadership accountability is more than buy-in. The Person in Charge (PIC) must be committed to food safety and proper food handling. It must be important to the PIC for the worker to consistently follow proper food handling procedures.
- Recognize employees who consistently demonstrate proper food handling procedures on
- Coach effective communication skills between team members, senior leadership, the general public, and regulatory officials.
- Provide coaching and training on “why” safe food handling is important and “how” it only takes one careless food handler to cause damage to the Brand. This coaching and training should take place during team meetings and all store visits.

Does Your Company/Agency/Organization Provide Continuous Training to Reinforce the Proper Application of Food Safety Knowledge and Skills by Food Handlers in the Workplace?

The literature shows that training and learning must continue long after the initial food safety training course has been completed. This question was used to determine how many companies, agencies, and organizations provided continuous training for food handlers after they had completed the original food handling course. The results for this item are presented in Table 15.

Table 15. Our Company/Agency/Organization Provides Continuous Training for Food Handlers to Reinforce the Proper Application of Food Safety Knowledge and Skills



More than three-fourths of the respondents indicated that food handlers received training after their initial food handler course was completed. This demonstrates a significant commitment on the part of most companies/agencies/organizations to provide continuous training for food handlers.

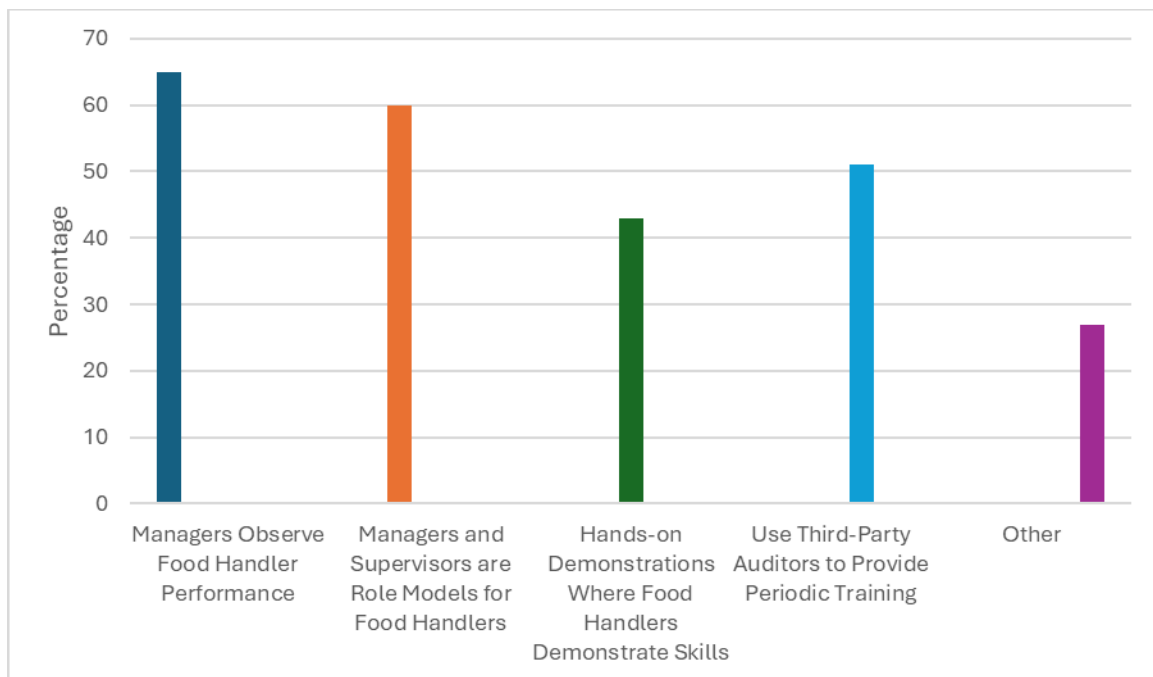
What types of continuous training are provided by your company, agency, or organization?

The literature shows there are several types of continuous training that can be employed to reinforce proper food handling practices in the workplace. These include:

- Managers observing food handler performance on the job followed by either corrective action when problems are observed or commendations when food handlers perform tasks correctly.
- Managers and supervisors serve as role models for food handlers by employing good personal hygiene and food handling practices.
- Hands-on demonstrations where food handlers demonstrate skills with immediate feedback.
- Use of third-party auditors to provide periodic training as part of their routine service.

The respondents who answered “yes” to the previous survey item were asked to select all of the above options that their company/agency/organization provides as well as an “Other” option they could use to identify other continuous training activities that were not provided as an option in the survey item. The respondents’ responses are summarized in Table 16.

Table 16. Types of Continuous Training Provided by Your Company/Agency/Third-Party Organization



Based on the responses to the survey, the two most commonly used types of continuous training are 1.) establishment managers observe food handler performance on the job followed by either corrective action or commendations (65%), and 2.) establishment managers and supervisors serve as role models for food handlers by employing good personal hygiene and food handling practices (60%). Fifty percent of the respondents reported using third-party auditing services to provide continuous training, and forty-two percent of the respondents reported using hands-on demonstrations where food handlers were asked to demonstrate proper food handling techniques and were provided immediate feedback.

The respondents who selected the “Other” option identified the following types of continuous training that were used in their company/agency/organization:

- We send monthly 1 min training videos on items such as hand washing, proper cleaning and sanitizing, etc.
- Food handlers are recertified every three years and are trained using updated food safety content.
- We use Fact Sheets to reinforce proper food handling activities.
- We use short 5–10-minute videos to remind employees about the “how” and “why” of proper food handling.
- We use internal QA teams that do food safety and company inspections to determine if more training is needed.
- We provide training/education during routine inspections.
- We used printed materials that are posted in various work stations.

The last four items in the survey were open ended questions that ask respondents to identify the following:

1. How does your company, agency, organization measure behavioral change by food handlers in the workplace?
2. What do you believe are the greatest obstacles to achieving behavioral change related to food safety by food handlers in the workplace?
3. What has your company/agency/organization done or can it do to overcome the obstacles related to achieving behavioral change by food handlers?
4. Information including ideas, suggestions, and/or experience that you believe is relevant to and will enhance the findings of this survey.

The information presented in the following sections is not weighted or prioritized. It simply summarizes the respondents’ responses by major categories in each section.

How does your company, agency, organization measure behavioral change by food handlers in the workplace?

The following three methods were most commonly reported by survey respondents as ways to measure behavioral change by food handlers in the workplace:

1. *Inspection/Audit Results*

This method involved collecting data from health inspection scores, food safety team observations, and third-party audits results. The data from inspections and audits were

compared in order to identify trends related to food handling performance. Some respondents also mentioned using risk factor studies to identify potential problems in order to take corrective action.

2. *Observations in the Workplace*

Respondents reported using a variety of self-assessment methods to observe food handling practices in the workplace. These include monitoring food handling practices during daily food safety walkthroughs, using third-party audits to identify violations and determine if they are corrected or repeated, measuring reduction of foodborne illness risk factors, self-reporting through managers, and surveys of food handlers to assess whether behavior has improved or stayed static.

3. *Analysis of Exam Data*

Exam data was analyzed to identify trends in which questions are answered incorrectly by specific company and work with them to understand why. This frequently involves differences between FDA Food Code recommendations and actual company practices. From there we discuss what additional training may be required.

4. *Food Handler Training Updates and License Renewal*

Food workers must renew certification every 3 years. Updates to the training content are made to remain current with state and local rules and regulations.

One of the survey respondents indicated they would like to have industry standards and metrics in place for measuring behavioral change by food handlers in the workplace.

What Do You Believe are the Greatest Obstacles to Achieving Behavioral Change Related to Food Safety by Food Handlers in the Workplace?

The following obstacles to achieving behavioral change by food handlers were most commonly identified by survey respondents:

1. *Lack of Food Safety Culture by Company, Agency, Organization Leadership*

Some of the most commonly reported obstacles related to culture and leadership include lack of food safety culture within the organization, upper management not fully buying in to food safety, upper management placing greater importance on operational practices, such as empty retail shelves or occupational hazards, on-site managers not being good role models for food handlers, and management not holding employees accountable for non-compliance.

2. *Language and Cultural Barriers of Staff*

Survey respondents identified language and culture as obstacles to behavioral change. Some examples of these obstacles include food handlers:

- speak English as a second language,
- have preconceived beliefs and habits related to food handling when hired,
- are not willing to learn and/or be flexible,

- are resistant to applying the knowledge and skills they learn during training on the job, and
- are indifferent about food safety.

3. *Training Issues*

Some respondents reported that training was not provided or was inadequate, especially when teaching food handlers “why” safe food handling is important. As previously noted in item 8, a majority of survey respondents said teaching food handlers "why" food safety is important to their job is a message that isn't always effectively communicated. This is especially true for young associates who are becoming involved in food preparation for the first time. Other respondents said training was boring, one dimensional, and not engaging. Respondents also agreed that it requires cash and human capital to develop and deliver engaging training and these resources are often lacking. These resource shortages also made it difficult to provide the continuous training needed to reinforce proper food handling behavior at the workplace.

4. *Staff Shortage and Employee Turnover*

A shortage of food handlers and high employee turnover rate creates a burden on food handler training and are obstacles to behavioral change. In addition, supervisors are often stretched thin and can't effectively monitor and correct behaviors when needed.

5. *Time Constraints*

Respondents said it was difficult to find the time to offer training and continuous training, and food handlers are managing so many things it is hard to balance it all.

6. *Food Handling Practices in the Workplace*

Standard Operating Procedures (SOPs) make it difficult for food handlers to both execute tasks quickly and maintain food safety standards. An example of this is how food handlers, especially grill/appetizer positions, require constant changing of disposable gloves with no consideration given to the subsequent "handwashing burden" this creates. Traditional food handling SOPs doom food handlers to failure.

What has Your Company/Agency/Organization Done or Can It Do to Overcome the Obstacles to Behavioral Change?

This survey question asked what a company/agency/third-party organization has done or can do to overcome obstacles to behavioral change. Most of the responses focused on what can be done to overcome the obstacles. The responses presented below are grouped by category but are not ranked by priority.

1. *Education and Training for Food Handlers*

Survey respondents said training and continuous training are a must for food handlers. The training must emphasize teaching “why” food safety is important to protect consumers, employees, and the employer’s reputation. Training must not become stale and repetitive, and content must be fresh and engaging. Some respondents said that training focuses too much on the negatives. The approach to training needs to address

root causes, and not simply focus on highlighting violations. Food handlers who routinely practice food safety on the job are the foundation of an effective food safety management system.

Respondents reported they would like to see food handler training required for anyone who touches food. Training for food handlers must be made easy, bilingual, and continuous by using things like guides/posters that identify a particular risk factor and detail the correct procedure with pictures at an 8th grade level that can be hung up in breakrooms or around the kitchen. Some respondents expressed having success with using the buddy system for newcomers. It allows established associates the chance to lead and those coming in to see positive adherence to expected work practices.

Other opportunities for food handler training include regulatory inspections and third-party audits. Food-handler training should be geared towards data from inspection reports, violation trends, risk factor studies, and intervention strategies.

The importance of training is undeniable. However, training alone does not guarantee behavioral change. It takes a multi-prong approach to achieve consistent behavior change, especially in an industry where the turnover is over 90%. It is necessary to think outside of the box and find different ways to use technology, promote buy-in, simplify processes, etc. It is important for food safety change agents to understand food safety is about creating systems that build-in behaviors to encourage food safety practices and accountability. Without accountability, behaviors will never change.

2. *Education and Training for Establishment Managers*

On-site management must be taught to place a high priority on food safety in their establishment. This would include offering more training programs customized for managers to empower them to further train and correct food handling violations within their unit. Managers must understand their role, how to impact employees' safe food handling practices, and how to integrate food safety into daily operations (SOPs).

3. *Assessment*

Respondents recommended spot checking associate behaviors through observation and gentle, non-judgmental coaching to reinforce their value to the company, while also reinforcing the importance of food safety to the health and safety of customers and their families. Some respondents said it would be beneficial if they could calibrate food handler training from market to market to make it easier to track and show trends.

4. *Personnel*

Many obstacles can be overcome by having a stable workforce. This requires food handlers who are properly trained and compensated and have a high degree of job satisfaction. In addition, food safety teams need more bilingual personnel who can communicate effectively with employees during routine inspections and audits. Managers must lead by example to show food handlers the benefits that will come from behavioral change related to food safety.

5. *Food Safety Culture*

Building a food safety culture is paramount to the success of a retail food business. This requires leaders who value food safety and serve as role models for other employees. Culture requires continuous emphasis on risk reduction and how failure to manage risk can increase the risk of foodborne illness and the adverse effects associated with it. Food safety must be an everyday topic of conversation that is built in to operational goals, so it has visibility and support at every job role level.

6. *Communication*

Continuous communication with executive level leadership is vital to stress the benefits of food safety for consumers, employees, and a company's reputation. At the unit level it's important to provide reminders about the importance of safe food handling and make the performance related to food safety part of routine performance reviews. Managers must be reminded about the importance of applying active managerial control throughout the day. Finally, provide proper support for identifying problems and recognition for speaking up when there is a problem.

7. *Facilities*

Equipment that is properly designed, constructed, installed, and maintained will enhance food safety and facilitate safe food handling practices. Purchasing the right kind of equipment is a good investment and will make food safety easier to achieve.

8. *Regulatory Requirements*

Respondents said one of the more complicated aspects of food handler training is the variability of regional/state regulatory requirements. They agreed it would be helpful for all states to conform to the same minimum requirements. A state law requiring all food handlers to receive training would improve the overall awareness of food safety industrywide. It would be great if food handler training was mandatory across all 50 States and based on a uniform Standard such as the one created by CFP and used by the ANSI National Accreditation Board (ANAB) to accredit providers of Food Protection Manager Certification credentials.

Some respondents recommended that a study be conducted to compare inspection scores on food handler related items in jurisdictions with and without food handler training requirements. This study could help determine if the training leads to a reduction in FBI risk factors. This seems like an excellent opportunity for a future research project.

Conclusions

The results of this survey validated that food handler training is an essential component of a retail food establishment's food safety management system. Food handler training must be continuous and place more emphasis on teaching "why" food safety is important. It must focus on controlling the risk factors that are known to contribute to foodborne illness and not become stale and repetitive. Training techniques and content must be fresh and engaging. Some respondents said that training focuses too much on the negatives. Finally, food handler training must address root causes of foodborne illness, and not simply focus on highlighting things that can result in violations.

The survey findings support the belief that “Food Safety Culture” is an important prerequisite to effective food safety management. Building a food safety culture requires leaders who value food safety and serve as role models for their employees. Culture requires continuous emphasis on risk reduction and how failure to manage risk can increase the risk of foodborne illness and the adverse effects associated that accompany it. Also, food safety must be an everyday topic of conversation that is built into operational goals, so it has visibility and support at every level in a company and establishment.

To accomplish behavioral change, it is necessary to provide clear and consistent message and communication that aligns with the company's food safety vision. Establishments should conduct routine assessments to assure that proper food handling is taking place and to make corrections when problems are identified. In addition, management should reward and recognize employees who follow proper food handling practices as required by the company's food safety culture. Finally, management should continuously engage employees to provide feedback and opportunities for improvement to make the food safety management system function at the highest level possible.