

Is Public Health – Dayton & Montgomery County’s level one food safety certification training effective?



Matthew Tyler MPH, Naila Khalil MBBS, MPH, PhD, and Sara Paton PhD
Department of Community Health, Center for Global Health



Background

Every year in the U.S. an estimated 48 million people fall ill, 128,000 are hospitalized and 3,000 die due to foodborne illnesses (FBI). Estimated costs for FBI are between \$10 and \$38 billion in the U.S. (Centers for Disease Control & Prevention [CDC], 2011; Pilling, Brannon, Shanklin, Howells, & Roberts, 2008).

Food safety training and certification is one method to combat FBI. One benefit of that training is improvement in knowledge.

In Ohio, beginning in 2010 for new food service operations or new retail food establishments, it became mandatory for one manager per shift to be certified in Level One Food Safety Training or equivalent. In 2011 Public Health - Dayton & Montgomery County (PHDMC) began offering Level One Food Safety Training Certification (Ohio Department of Health [ODH], 2010).

Purpose

To assess the effectiveness of PHDMC's Level One Food Safety Training Certification in increasing knowledge of its participants.

Methods

Both before and after completing PHDMC's Level One Food Safety Certification Training, each trainee was asked, but not required, to complete a ten-question quiz.

The ten questions on the quiz included topics such as hand washing, temperatures, food storage, and other food safety issues.

Pre- and post-quiz scores were entered for each of the ten questions, using (1) to represent a correct answer and (0) to represent an incorrect answer.

Pre-training and post-training quiz score data (2011-2013) from approximately 692 participants were provided for the current analysis. Paired t-tests were used to evaluate change in scores on individual questions, and by job responsibility (manager, owner, cook, preparation, server). A two-sided p-value of <0.05 was considered significant.

Results

There was an average of 20.6% improvement in scores from pre- to post-quizzes (Figure 1).

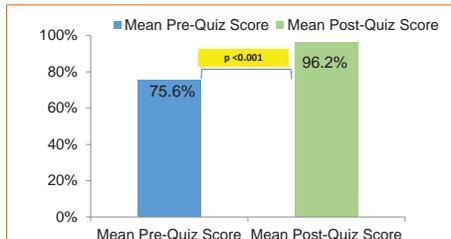


Figure 1. Mean pre- and post-quiz scores.

There were significant improvements in quiz scores by individual questions, except for Question #1. Temperature-related questions (#2, 3, 9, & 10) were missed most frequently but also showed the most improvement (Figure 2).

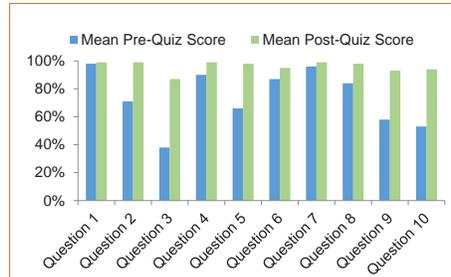


Figure 2. Mean pre- and post-quiz scores by question.

Owners had the highest mean pre-quiz score. Servers had the highest mean post-quiz scores and the most improvement (20%) (Figure 3).

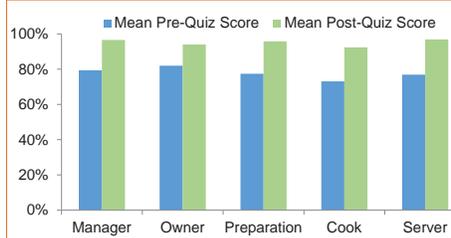


Figure 3. Mean quiz scores by job responsibility.

Discussion and Conclusion

PHDMC's Level One Food Safety Certification class was effective in increasing knowledge of participants from pre- to post-training.

There were significant improvements in quiz scores both aggregately, by individual question (except for Question #1), and by job responsibility.

Results similar to other findings:

- Dworkin, Panchal, and Liu (2012): 40 question test
 - 6% improvement in test scores
- Lilliquist, McCabe, and Church (2005): 20 question test
 - Group 1: 40% mean score with no training
 - Group 2: 62% mean score with training
 - Group 3: 79% mean score with training plus demonstration

The most effective training has a variety of elements.

- Long-term effectiveness of simple knowledge training unclear.
- The most effective training is continuous and includes 'hands-on' interactive demonstrations.

Limitations:

- Varying styles of those who teach the course might skew quiz results.
- This project did not assess long-term knowledge retention.

Recommendations:

- Added emphasis on temperature-related questions during course.

References

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