

Identifying Themes to Guide Curriculum Development for the Poultry and Egg Education Project (PEEP)

Dr. John C. Ricketts, Associate Professor Program Leader
Dr. Sandria Godwin, Professor & Director of the Didactic Program in Dietetics
Ms. Morgan Beaty, Graduate Student in Agricultural Education
Ms. Alison Leathers, Graduate Student in Agricultural Education
Tennessee State University
3500 John A. Merritt Blvd.
Nashville, TN 37209
615-630-0526
jricket1@tnstate.edu

Dr. Edgar Chambers, IV, Professor & Sensory Analysis Center Director
Kansas State University
1310 Research Park Drive
Manhattan, KS 66502
785-532-0156
eciv@ksu.edu

Ms. Sheryl C. Cates, Senior Research Policy Analyst
Research Triangle Institute International
3040 East Cornwallis Road
Post Office Box 12194
Research Triangle Park, NC 27709-2194
919-541-6810
scc@rti.org

Identifying Themes to Guide Curriculum Development for the Poultry and Egg Education Project (PEEP)

Introduction/need for research

The Centers for Disease Control (2011) estimates that approximately one in six Americans (~ 48 million people) are affected by foodborne illnesses, and approximately 128,000 of these people are hospitalized and 3,000 die. Both *Salmonella* and *Campylobacter* are two of a handful of pathogens that cause the most foodborne illnesses, hospitalizations, and deaths each year (2011). According to the United States Department of Agriculture (2015), raw and undercooked poultry and eggs are often associated with *Campylobacter* and *Salmonella* caused illnesses. Consumers can reduce their risk of foodborne illness from these pathogens by safely purchasing, storing, handling, and preparing poultry products and eggs.

The multidisciplinary, multi-institutional Poultry and Egg Education Project (PEEP), funded by a 5-year USDA National Food and Agriculture Institute (NIFA) Agriculture and Food Research Initiative (AFRI) grant (Project Number TENX-2011-06512), seeks to reduce illnesses from *Salmonella* and *Campylobacter* pathogens by conducting bench science research on best practices for safe handling and use of poultry and egg products and creating science-based educational programming for consumers. This poster will describe key findings of a content analysis of microbiological and consumer-focused research conducted as part of the PEEP USDA AFRI project.

Conceptual Framework

Objective one of the PEEP USDA AFRI project was to characterize consumers' behavior and understanding of safe poultry practices. Objective two was to address the risk of cross-contamination when purchasing, handling, and cooking poultry products. Objective three was to develop and test educational programs on poultry and egg purchasing, handling, storing, and prepping (Godwin, 2014a).

Developing a conceptual framework to guide and organize educational activities and research was the purpose of this content analysis. The first objective of the study presented here was to review completed reports and identify egg and poultry food safety themes. The second objective was to analyze themes in the research to determine the focus of curriculum development.

Methodology

A content analysis was conducted on the research and reports created by the PEEP project in its first 2.5 years, January 2013 to July 2015. Content analysis is a research methodology that seeks to identify and evaluate themes to better understand their meaning (Krippendorff, 2013). First, project summaries and corresponding articles were reviewed in entirety. There were 26 total articles, presentations, and posters from research outlined in the four project summaries that were used as the cases for this study (Godwin, 2015; Godwin, 2014a; Godwin, 2014b; Godwin, 2013).

Egg and poultry food safety themes were identified and labeled with key words written on a

sticky note serving as a bookmark. A note with a number was also placed on each article, poster or presentation to give it a case number. A Microsoft Excel document was created to input the main themes or subthemes and page numbers they were mentioned. The theme, subtheme, and page number(s) were entered into separate columns in Excel. If one of the themes or subthemes was mentioned in the article, presentation or poster at least once, it was counted as one frequency. Frequencies and percentages were calculated for each theme and subtheme.

Results/findings

The three main themes identified in the project summaries and articles were 1) shopping, 2) handling and storage, and 3) cooking behaviors. The theme of handling and storage had the highest number of frequencies ($f=43$) followed by the theme of cooking behaviors ($f=34$) and the theme of shopping behaviors ($f=31$). Under the theme of handling and storage, three almost equally mentioned subthemes were *storage of poultry and eggs at home* ($f=14$), *cross contamination* ($f=15$), and *hand washing* ($f=14$). For the Cooking Behaviors theme, *proper thermometer use* was mentioned most ($f=15$). Regarding the Shopping Behaviors theme, the most frequent subthemes were *separating poultry from other foods when shopping in the grocery store (cross contamination)* ($f=11$) and *utilizing grocery store meat plastic bags* ($f=9$). The poster will indicate frequencies and percentages of times the themes/subthemes were mentioned in all of the project studies.

Conclusions

The research presented in the PEEP project summaries (Godwin, 2015; Godwin, 2014a; Godwin, 2014b; Godwin, 2013) presented certain areas where consumers are lacking in food safety practices. These areas include the following practices when dealing with raw poultry and shell eggs:

- Utilize hand sanitizer and plastic bags provided at meat sections in grocery stores
- Understand safe egg purchasing
- Follow recommended storage practices for raw poultry
- Thaw poultry correctly, including not washing or rinsing raw poultry in sink
- Wash hands properly
- Store eggs and poultry at home properly
- Prevent cross contamination at grocery store and at home
- Understand thermometer use and proper food temperatures for egg dishes and poultry
- Cook egg yolks and whites until firm
- Do not consume raw or undercooked eggs

Implications/recommendations/impact on profession

There is a need to educate consumers about safe egg and poultry practices. Specific lessons will be organized around the themes, and include the identified subthemes and the specific areas where consumers are lacking in food safety practices based on the PEEP studies. Curriculum lessons should also focus on these specific practices to educate consumers about the safe methods for handling eggs and poultry and therefore try to reduce the amount of foodborne illnesses and deaths. Researchers are currently developing age appropriate lessons based on findings, and this curriculum will be shared with profession subsequently.

References

- Centers for Disease Control and Prevention. (2011). CDC estimates of foodborne illness in the United States. Retrieved from <http://www.cdc.gov/foodborneburden/2011-foodborne-estimates.html#top>
- Godwin, S. (2015). Progress report for PEEP: Development and evaluation of science-based messages to improve consumer's storage, handling and preparation of poultry and poultry products. Unpublished internal document, Tennessee State University.
- Godwin, S. (2014a, January). Development and evaluation of science-based messages to improve consumers' storage, handling, and preparation of poultry and poultry products: Progress report. Unpublished internal document, Tennessee State University. (Check citation)
- Godwin, S. (2014b, June). Development and evaluation of science-based messages to improve consumers' storage, handling, and preparation of poultry and poultry products: Progress report for second half of year 2. Unpublished internal document, Tennessee State University.
- Godwin, S. (2013, June). Year one project summary. Unpublished internal document, Tennessee State University.
- Krippendorff, K. (2013). *Content analysis: An introduction to its methodology*. Thousand Oaks, CA: Sage Publications. Retrieved from <http://www.books.google.com>
- United States Department of Agriculture. (2015). Foodborne Illness: What Consumers Need to Know. Retrieved from: http://www.fsis.usda.gov/wps/portal/fsis/topics/food-safety-education/get-answers/food-safety-fact-sheets/foodborne-illness-and-disease/foodborne-illness-what-consumers-need-to-know/ct_index