

**Conference for Food Protection  
Committee FINAL Report**

**COMMITTEE NAME:** Time as a Public Health Control

**COUNCIL or EXECUTIVE BOARD ASSIGNMENT:** Council III

**DATE OF REPORT:** December 6, 2013 (revised February 16, 2014)

**SUBMITTED BY:** Sue Vergne and Charles Otto on behalf of Committee Members

**COMMITTEE CHARGE(s):**

Issue # 2012 III-026

The Conference recommends:

That a committee be formed to identify safe times at which foods can be held without temperature control and without cooling to 41 °F, supported by scientific information (e.g., challenge studies, modeling tools).

The Committee's charge shall include, but not be limited to, the following foods and food categories:

- Cut tomatoes
- Cut cantaloupe
- Chopped leafy greens
- Chopped garlic and oil
- Opened canned tuna
- Opened canned beans (e.g., green beans, chickpeas, black beans)
- Hummus
- Opened canned product used as a sole item
- Opened canned product used as an ingredient in a formulation

The committee may wish to consider a document published by Institute of Food Technologists (IFT) in 2001 and a National Advisory Committee for the Microbiological Criteria for Foods (NACMCF) challenge study document. The Committee is also charged to report recommendations back to the 2014 CFP biennial meeting.

## COMMITTEE ACTIVITIES AND RECOMMENDATIONS:

### 1. Progress on Overall Committee Activities:

#### a. Summary:

The Time as a Public Health Control (TPHC) committee chairs were selected by Council III Chair and Co-Chair. The committee members were recommended by the committee chairs from a list of interested conference members with an emphasis on balance of constituencies and experience with the conference. The attached roster contains the individual's confirmed by the Board.

The committee held its first meeting a month after the membership roster had been accepted. The committee used a web conferencing format for its twelve meetings. With the permission of the members in attendance, the meeting proceedings were recorded and the link was provided to all members for review. This recording and the detailed committee minutes assisted the members who had missed a meeting the opportunity to stay current with the committee's deliberations.

The committee initially reviewed both 2012 Council recommended documents, IFT's Evaluation and Definition of Potentially Hazardous Foods (2001), and NACMF Parameters for Inoculated Pack/Challenge Studies (2009). The 2004-III-0009 Issue passed and submitted to FDA following the 2004 CFP biennial meeting (to establish the current Food Code requirements first published in the 2005 edition) was also consulted. The committee members also familiarized themselves with the two leading pathogen growth modeling programs, the USDA Pathogen Modeling Program (v.7) and ComBase.

The committee examined each of the nine foods and food categories in turn during the web meetings. Committee teams reviewed the literature on foodborne outbreak risks and associated pathogens of each food and food category.

The basic growth parameters of pH and  $A_w$  were also considered. The committee also deliberated on the ambient temperatures to be expected during the holding time, if the foods were started at these temperatures rather than starting the 4 hour recommended hold time at 5 °C (41 °F).

Finally, the committee with the assistance of a scientific adviser looked at the pathogen modeling data to assess the growth potential at this ambient temperature within four hours. These growth data were also examined in light of other research findings related to the particular organism of concern. As with the FDA tomato study and recommendations, a one log

growth was considered the threshold of concern for the committee of the pathogen of most concern.

After examining all of the data gathered on the foods or food category, contributing operational experience with the retail level processes, a consensus position was determined on each item included in the charge. As a baseline for each food or food category, it was assumed that the original food or food category was in sound condition and the retail establishment was following all other Food Code requirements in regard to personnel, food, equipment and facilities. The detailed committee minutes and recording links provided through the Council III Chair and Co-Chair to the board highlight the examination of each food and food category before a consensus position was reached.

During the discussion of the assigned foods and food categories, it was determined that no other time was available for the committee to explore the part of the charge “charge shall include, but not be limited to.” It was discussed by the committee that specific food and food category listing, as presented in the charge at the 2012 biennial meeting, was probably not the best way to amend Food Code’s list of foods exempt from starting time control with temperature holding requirements. With more scientific research and study, by FDA or a scientific committee, this exemption could probably be made in a more systematic way over broader categories of foods.

**b. Consultations Outside the Committee:**

Rich Linton, PhD., North Carolina State University, College of Agriculture and Life Sciences, and CFP Time as a Public Health Control Committee Chair, 2002-2004

Kathy Glass, PhD., University of Wisconsin, Food Research Institute

Don Zink, PhD., Food and Drug Administration, Center for Food Safety and Applied Nutrition

**c. Outcome / Disposition of Charge:**

The committee used the recommended IFT and NACMF reports, pathogen modeling programs, outbreak investigation reports, CDC FOOD database, and other scientific references in their deliberations of the foods and food categories in the charge.

The committee recommends two issues be submitted to the 2014 biennial meeting as outlined in this report, in addition to the issue to acknowledge the final report.

## **2. Recommendations for Consideration by Council:**

### **a. Committee Future:**

Committee has completed the 2012 Conference charge and there is no need to continue it.

## **3. CFP ISSUES TO BE SUBMITTED BY COMMITTEE:**

The following issues will be submitted:

- a. "Report – Time as a Public Health Control (TPHC) Committee" - requesting the Conference to acknowledge the 2012–2014 Time as a Public Health Control Committee final report.
- b. "TPHC 2 – Foods Starting at Room Temperature and Held Using TPHC". Cut tomatoes, cut cantaloupe, chopped leafy greens, opened canned tuna, and opened canned product used as a sole item may be started at room temperature and held up to four hours using the establishment's Time Control Plan.
- c. "TPHC 3 – Foods Needing More Research for Using TPHC". These include retail-prepared chopped garlic and oil mixtures, hummus made from non-commercially prepared ingredients, and opened canned products used as an ingredient in a formulation. These foods and food categories are referred to FDA for further evaluation and research to determine if the following products can be held without cooling to 5°C (41 °F) prior to using time as a public health control.

#### 4. Issue Supporting References:

**(Note: The following supporting attachments/references were reviewed by the committee members and may not represent the views of the Conference for Food Protection.)**

##### a. General:

- i. IFT's Evaluation and Definition of Potentially Hazardous Foods (2001)  
[<http://www.fda.gov/Food/ScienceResearch/ResearchAreas/SafePracticesforFoodProcesses/ucm094141.htm>]
- ii. NACMF Parameters for Inoculated Pack/Challenge Studies (2009)  
[[http://www.fsis.usda.gov/wps/wcm/connect/3b52f9c0-0585-4c0a-abf2-b4fc89a9668c/NACMCF\\_Inoculated\\_Pack\\_2009F.pdf?MOD=AJPERES&CACH EID=58c8f975-2193-4f00-873e-8739fec1f1e1](http://www.fsis.usda.gov/wps/wcm/connect/3b52f9c0-0585-4c0a-abf2-b4fc89a9668c/NACMCF_Inoculated_Pack_2009F.pdf?MOD=AJPERES&CACH EID=58c8f975-2193-4f00-873e-8739fec1f1e1)]
- iii. USDA Pathogen Modeling Program version 7 (2003)  
[<http://ars.usda.gov/services/docs.htm?docid=6786>]
- iv. ComBase - a Combined Database for Predictive Microbiology  
[<http://www.combase.cc/index.php/en/>]
- v. CDC National Outbreak Reporting System (NORS) Foodborne Outbreak Online Database (FOOD)  
[<http://wwwn.cdc.gov/foodborneoutbreaks>]

##### b. Cut Tomatoes:

- i. FDA Program Information Manual (PIM): Retail Food Protection Storage and Handling of Tomatoes. Page Last Updated: 09/04/2013.  
[<http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm113843.htm>]
- ii. Modeling the Growth of Salmonella in Cut Red Round Tomatoes as a Function of Temperature. Wenjing Pan and Donald W. Schaffner, Journal of Food Protection, Vol. 73, No. 8, 2010, Pages 1502–1505.  
[<http://www.ingentaconnect.com/content/iafp/jfp/2010/00000073/00000008/art00013>]

##### c. Cut Cantaloupe:

- i. FDA Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards of Melons - Draft Guidance -July 2009  
[<http://www.fda.gov/Food/GuidanceRegulation/GuidanceDocumentsRegulatoryInformation/ProducePlantProducts/ucm174171.htm>]
- ii. FDA-Retail Food Safety PIM - Safe Handling Practices for Melons – 2001

[<http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm217290.htm>]

- iii. Growth kinetics of *Listeria monocytogenes* and spoilage microorganisms in fresh-cut cantaloupe. Fang T, Liu Y, Huang L. *Food Microbiology*, 2013 May;34(1):174-81.  
[<http://www.ncbi.nlm.nih.gov/pubmed/23498195>]
- iv. Development and validation of a mathematical model for growth of pathogens in cut melons. Li D, Friedrich LM, Danyluk MD, Harris LJ, Schaffner DW. *Journal of Food Protection*, 2013 Jun;76(6):953-8.  
[<http://www.ingentaconnect.com/content/iafp/jfp/2013/00000076/00000006/art00005>]

#### **d. Chopped Leafy Greens:**

- i. Quantitative Assessment of the Microbial Risk of Leafy Greens from Farm to Consumption: Preliminary Framework, Data, and Risk Estimates, Michelle D. Danyluk and Donald W. Schaffner, *Journal of Food Protection*, 2011; 74(5):700–708.  
[<http://www.ncbi.nlm.nih.gov/pubmed/21549039>]
- ii. FDA Program Information Manual Retail Food Protection: Recommendations for the Temperature Control of Cut Leafy Greens during Storage and Display in Retail Food Establishments - July 7, 2010  
[<http://www.fda.gov/Food/GuidanceRegulation/RetailFoodProtection/IndustryandRegulatoryAssistanceandTrainingResources/ucm218750.htm>]
- iii. Survey of temperature and consumption patterns of fresh-cut leafy green salads: risk factors for listeriosis. Carrasco E, Pérez-Rodríguez F, Valero A, García-Gimeno RM, Zurera G. *Journal of Food Protection*, 2007 Oct;70(10):2407-12.  
[<http://www.ncbi.nlm.nih.gov/pubmed/17969627>]

#### **e. Opened Canned Tuna:**

- i. Effect of Storage Conditions on Histamine Formation in Fresh and Canned Tuna. Maurice Kerr, Paul Lawicki, Sylvia Aquirre and Carl Rayner. State Chemistry Lab, Public Health Division, Victorian Government Department of Human Services, 2002.  
[[http://www.health.vic.gov.au/archive/archive2011/foodsafety/archive/downloads/histamines\\_fishstorage2002.pdf](http://www.health.vic.gov.au/archive/archive2011/foodsafety/archive/downloads/histamines_fishstorage2002.pdf)]
- ii. Bacterial Growth and Histamine Production in Tuna Salad Preparations. Susan McCarthy, Kristin Butler, Ronald Benner, Jr. FDA Poster, International Association of Food Protection, 2012.  
[<https://iafp.confex.com/iafp/2012/webprogram/Paper1621.html>]

**f. Retail Prepared Chopped Garlic And Oil Mixtures:**

- i. FDA – Safe Practices for Food Processes, Chapter IV: Outbreaks Tables -  
[<http://www.fda.gov/food/foodscienceresearch/safepacticesforfoodprocesses/ucm091270.htm>]
- ii. Garlic Safe Methods to Store, Preserve, and Enjoy, Linda J. Harris, University of California, Davis Publication 7231, November 1997.  
[<http://anrcatalog.ucdavis.edu/pdf/7231.pdf>]
- iii. Toxin Production by Clostridium botulinum Type A Under Various Fermentation Conditions. Lynne S. Siegel, Joseph F. Metzger, Applied and Environmental Microbiology, Oct. 1979, p. 606-611.  
[<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC243547/pdf/aem00203-0050.pdf>]
- iv. Conservative Prediction of Time to Clostridium botulinum Toxin Formation for Use with Time-Temperature Indicators to Ensure the Safety of Foods. Guy E. Skinner, John W. Larkin, Journal of Food Protection, Vol. 61, No.9, 1998, Pages 1154-1160.  
[<http://www.ncbi.nlm.nih.gov/pubmed/9766067>]

**g. Hummus:**

- i. Viability of salmonella and Listeria monocytogenes in Delicatessen Salads and Hummus as Affected by Sodium content and Storage Temperature. Alali, Walid Q; Mann, David A; Beuchat, Larry R. Journal of Food Protection 75.6 (June 2012): 1043-56.  
[<http://www.ncbi.nlm.nih.gov/pubmed/22691471>]
- ii. Growth and Survival of Listeria monocytogenes in two Traditional Foods from the United Arab Emirates. V.S. Gohil; M.A., Ahmed; R. Davies; R.K. Robinson. Food Microbiology (1996, 13): 159-164.  
[<http://www.ingentaconnect.com/content/ap/fd/1996/00000013/00000002/art00020>]
- iii. Hazard Analysis and Critical Control Point Generic Models for Some Traditional Foods, a Manual for the Eastern Mediterranean Region. World Health Organization.  
[<http://applications.emro.who.int/dsaf/dsa1100.pdf>]
- iv. Multistate Outbreak of Salmonella Serotype Bovismorbificans infections Associated with Hummus and Tahini – United States, 2011. Morbidity and Mortality Weekly Report. Nov. 23, 2013, 944-947.  
[<http://www.cdc.gov/mmwr/pdf/wk/mm6146.pdf>]

- v. Surveillance for Foodborne Disease Outbreaks – United States, 2007. Morbidity and Mortality Weekly Report. Aug. 13, 2010, 973-979.  
[<http://www.cdc.gov/mmwr/pdf/wk/mm5931.pdf>]

**5. COMMITTEE MEMBER ROSTER (attached)**

2012-14 TPHC Committee Roster.xls