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PERIODICALS

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FOOD PROTECTION TRENDS

SCIENCE AND NEWS

FROM THE
INTERNATIONAL ASSOCIATION
FOR FOOD PROTECTION

SEPTEMBER 2005



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References:

¹ Rose, Bonnie E. 2001. Isolation and identification of *Salmonella* from meat, poultry and egg products. In *Microbiology laboratory guidebook*, 3rd ed., Food Safety and Inspection Service, U.S. Department of Agriculture, Washington, D.C.

² U.S. Food and Drug Administration. 2003. Bacteriological analytical manual (online), AOAC International, Gaithersburg, MD.

³ International Organization for Standards (ISO). Microbiology of food and animal feeding stuffs - Horizontal method for the detection of *Salmonella* spp., 4th Edition, ISO 6579:2002.

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BBL™ CHROMagar™ O157	214984	20 plates
BBL™ CHROMagar™ Salmonella	214983	20 plates
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FOOD PROTECTION TRENDS

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Symposium on Relating Microbiological Testing and Microbiological Criteria to Public Health Goals

October 31-November 1, 2005

Gallaudet University, Kellogg Conference Center, Washington, DC

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SYMPOSIUM OVERVIEW: Leading international experts on microbiological food safety testing, criteria, risk assessment, and policy will lead a thorough discussion of the issues surrounding the development of a risk-based approach to the establishment of microbiological criteria. This promises to be an important meeting, on a global basis, to better define ways of relating traditional food safety metrics to their public health outcomes.

REGISTRATION INFORMATION:

Registration is now available online! Participation will be limited, so early registration is strongly recommended. For program details and registration information, go to the ILSI web site at www.ilsi.org under "Events," send an E-mail to ilsimeetings@ilsi.org, or contact the ILSI Meetings Department at 202.659.0074.

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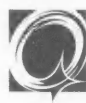


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“PERSPECTIVES FROM NORTH OF THE 49TH”

Well, everyone, here is my very first column in *Food Protection Trends*. I can't tell you how proud I am and how fortunate I feel to be serving as your President for the next year! I also cannot believe how fast time has gone since I was elected Secretary some three years ago. It seems like just yesterday. Well, I have learned numerous things about IAFP these last three years and hope to keep on learning for many years to come. Now, many people have asked me what exactly have I learned since becoming Secretary, so, I will now give you my “top ten list” (not in any order, as all are very important!):

1. What an incredible organization IAFP really is;
2. How truly dedicated all IAFP staff members are;
3. The true strength of the organization really lies in all of you, as you are tremendous ambassadors for IAFP;
4. How critically important our Affiliates are;
5. The importance of listening to all members, as well as IAFP Staff, to truly get to know the heartbeat of our Association;
6. The true importance of our Professional Development Groups;
7. That we need to keep building up our Foundation Fund, so that we can continue to be the premier food safety organization in the world;
8. That the various committees are run by highly dedicated and involved people who truly make a difference in our Association;



By **JEFFREY FARBER**
PRESIDENT

“I know this is going to be a great year for IAFP and its Members”

9. That the Program Committee, which plays a large role in developing our Annual Meeting Program is very well-run, as evidenced by our excellent scientific programming;
10. Students are truly the building blocks of our organization and we need to do even more than we are doing at present to attract and keep students coming to our Annual Meeting and getting involved in our Association.

Just to give you a little background on myself, my wife Barbara and I have three children. Melanie,

our eldest, is entering Osgoode Hall Law School (situated in Toronto) this year; Allison, our middle child is going into her third year at Queen's University in Kingston, Ontario in the health sciences area, and Brandon, our youngest, is starting his first year at the University of Western Ontario in the area of business. Barbara also works for the Federal Government in the area of disability pensions for the Income Securities Programs.

We have lived in Ottawa for just over 20 years now, having been born and raised in Montreal. So, yes, we are Montreal Canadian hockey fans and loved the Expos, who now are situated in Washington, D.C.!

After finishing my Ph.D. at McGill University in food microbiology, I did a post-doctoral fellowship at Health Canada, and have been there ever since. I started off as a research scientist, went on to become Research Division Chief, Associate-Director, and then, Director of the Bureau of Microbial Hazards, Food Directorate, Health Canada. I have a wonderful professional staff of about 55 people who work in the areas of research, risk assessment and policy in the microbial food safety area.

As you read this column, you will hopefully have arrived safely at home after having attended our Annual Meeting in Baltimore. As of now, it is shaping up to be our biggest and best meeting ever! I would really love to hear from you about your experiences at the Annual Meeting and your advice and suggestions on how we could possibly improve upon it.

I know that this is going to be a great year for IAFP and its members. We start off with our Annual Meeting, then we will be having our first ever IAFP meeting in Europe. This first “IAFP Symposium on Food

Safety" will be held in Prague, The Czech Republic on October 11–12, 2005. Then, we are a sponsor of an ICMSF meeting on microbiological criteria, which will be held October 31–November 1, 2005 in Washington, D.C. Hopefully, you will have picked up brochures on these two exciting events at our Annual Meeting, but if not, please visit our Web site for more information. You will be hearing more about these meetings in future columns.

I would like to thank Stephanie Olmsted, who has completed her one-year term representing the Affiliate Council on the Board. Stephanie has really done an

outstanding job and will be missed. Our new incoming Chairperson, Terry Peters, is a fellow Canadian. I know that Terry is very excited about taking over as Chair and will also do a great job. I would also like to recognize two other exceptional IAFP members, our Past President, Dr. Paul Hall, who will be leaving the IAFP Executive Board this year, and Dr. Kathy Glass, who will now be Past President. These two individuals are both highly dedicated and totally devoted to IAFP. They have both worked extremely hard for the Association and I am certain that they will continue to do so for many years. We are also very excited to

have Dr. Stan Bailey join our Executive Board!

I really look forward to communicating with you in this column in the coming year. Any and all ideas or suggestions you have on any aspect of IAFP would be very much appreciated. Please let me know your views, ideas, opinions, etc., on anything and everything! Even though I am North of the 49th, I am only an E-mail away at jeff_farber@hc-sc.gc.ca. Until next time...

Quote of the month: The meeting of two personalities is like the contact of two chemical substances: if there is any reaction, both are transformed. Carl Jung

Have a great month!



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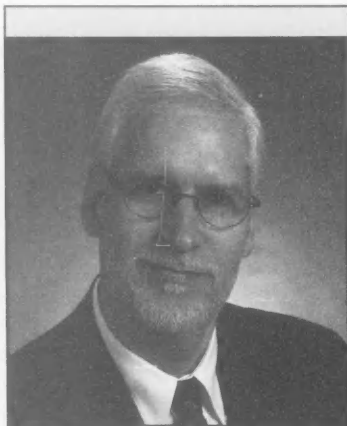
“COMMENTARY” FROM THE EXECUTIVE DIRECTOR

As you read this column in September, IAFF 2005 will have been completed as will our fiscal accounting year. But, at the time I am writing this column, we have about two weeks to go until the beginning of IAFF 2005 and about a month until the end of our fiscal year. I bring this to your attention in that one of my responsibilities is to report on the financial condition of the Association during our Annual Business Meeting. I am looking forward to doing so this year, because financially, IAFF is looking stronger than ever!

For many years, IAFF has operated with a negative general fund balance. This meant, that if IAFF were to cease operations, our debts would be paid, but monies owed to our Members for unused services could not be returned in full. Of course this was never a potential problem, or ever considered, and IAFF's cash flow was always sufficient to pay all debts timely.

Beginning about twelve years ago when this problem became more evident, we set out on a plan to begin chipping away at the negative fund balance and to convert it to a positive fund balance, which is of course, a much more desirable position to be in! We had a few setbacks along the way, but most of the years we were able to reduce the negative balance.

Finally, with the conclusion of our fiscal year ending August 31, 2003, we obtained our goal of a positive general fund balance! That year we ended with \$28,000 in the general fund. The fiscal year ending August 31, 2004 was a fantastic year for IAFF in which we added \$162,000 to the general fund and at that time the balance in the general



By **DAVID W. THARP, CAE**
EXECUTIVE DIRECTOR

“It is nice to be able to operate IAFF with a positive general fund balance”

fund sat at \$190,000. Our current year is shaping up to be another excellent year for the Association and pending the financial outcome of IAFF 2005, we should again add to our positive general fund balance!

This time of year always makes me nervous, not knowing how our Annual Meeting will turn out financially. I know it will be a success for the reasons of bringing Members together to share information about protecting the food supply, but in order for our year to prove financially successful, we have to have excess revenue generated by the Annual Meeting. All of our

indicators lead us to believe that we will be able to improve our financial condition for the year ending August 31, 2005. Watch December's issue of *Food Protection Trends* for the financial report!

One related topic that comes up when you mention the subject of a non-profit organization “making a profit” is, “how much of a profit is acceptable?” Surely, we don't want to “over profit” from our Members or Annual Meeting, but we do want to build the Association to have a healthy financial life. Our long-term goal is to hold 50% of our annual operating budget in general fund reserves. That is the amount recommended by most association financial experts. With our current budget, that will be just over one million dollars. Of course this cannot be achieved overnight.

We are making great strides towards this goal, having accumulated \$190,000 as of August 31, 2004. We hope to be able to surpass 50% of our annual budget in our reserves in the next 10 years. By doing this, the Association becomes much stronger and becomes able to make decisions that might affect the financial results for any specific year. We can try new projects and move in new directions where we may not be able to project actual results without having the fear of facing a losing proposition.

It is nice to be able to operate IAFF with a positive general fund balance. We have worked a long time to achieve this and now will continue to work to protect the advantage that we hold. As we approach our 100th anniversary (in 2011), it is appropriate that the Association be in the best financial condition ever! That is certainly an attainable goal to be met.

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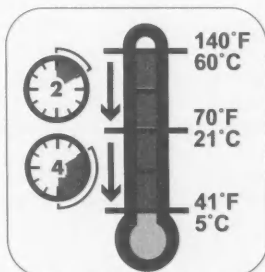
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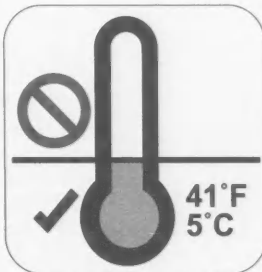
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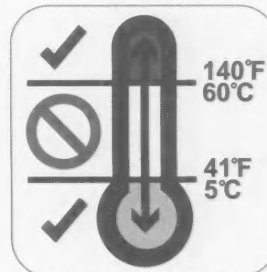
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Status of Prerequisite and HACCP Program Implementation in Iowa and Kansas Restaurants: Sanitarians' Perspective

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SUMMARY

The purpose of this study was to obtain baseline data about the presence of HACCP and prerequisite programs in chain and independent restaurants from the perspective of sanitarians who inspect restaurants and to determine how those programs have changed over the past five years. A three-part written questionnaire was distributed to all Iowa and Kansas sanitarians; 36 Iowa sanitarians (35%) and 18 Kansas sanitarians (41%) responded. The prerequisite program most often lacking in independent restaurants was a system of standardized recipes with critical control points (4%). Sanitarians noted little improvement in prerequisite programs over the past five years. Employee knowledge, time, and manager knowledge are identified as the top three barriers to implementing prerequisite and HACCP programs. Results indicate that important food safety practices need to be implemented in Iowa and Kansas restaurants. Sanitarians play an important role in improving food safety practices in restaurants and if more time were available to conduct inspections, sanitarians could provide referrals and resources specific to the needs of the operations to support food safety improvements.

INTRODUCTION

Foodborne illnesses are a significant problem in the United States (1). Commercial foodservice operations frequently are identified as the source of foodborne illness outbreaks resulting from mis-handled foods (5). The Report of the FDA Retail Food Program Database of Foodborne Illness Risk Factors (6) was the first attempt of the Food and Drug Administration (FDA) to develop baseline data on compliance of retail foodservice operations with regard to risk factors for foodborne illness. Full-service restaurants were found to be 60% in compliance and fast food restaurants in 74% compliance for major risk factors, which represents compliance scores that are lower than those for hospitals, nursing homes, and elementary schools.

The follow-up study by FDA (8) found that only 13% of full-service restaurants were out of compliance with food from unsafe sources, but 42.7% were out of compliance with poor personal hygiene, and 63.8% were out of compliance for improper holding time and temperature. The percentages of fast food restaurants out of compliance with these risk factors were lower, with 2.3%, 31.2%, and 41.7%, respectively. Because of the relatively high percentages of restaurants that are "out of compliance" with regard to risk factors, food safety should be of utmost concern to restaurant owners/managers.

A peer-reviewed article

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TABLE 1. Characteristics of sanitarians (n = 54)*

Characteristic	N
Age	
30 years or younger	8
31 – 40 years	19
41 – 50 years	10
51 – 60 years	14
Gender	
Male	32
Female	20
Education	
High School	0
Some College	8
Bachelor's Degree	34
Graduate Degree	10
Years employed as a sanitarian	
5 years or less	26
6 – 15 years	21
16 – 25 years	2
26 years or more	3
Number of operations inspected/sanitarian	
Less than 300 operations	27
300 – 599 operations	20
600 – 899 operations	4
Greater than 900 operations	2

*Due to non-respondents, totals may not equal 54

Implementation of Hazard Analysis Critical Control Point (HACCP) systems has been recognized as having great potential for reducing the number of foodborne illness outbreaks (3, 7). The federal government has placed significant emphasis on food safety, recommending HACCP programs as a way to protect the health of the public. The 2001 Food Code stated that "implementation of HACCP programs by the establishments will profoundly enhance their (commercial foodservice's) role in the protection of public health" (7). In addition, the National Advisory Committee on Microbiological Criteria for Foods (NACMCF) (12) contends that "preventing problems from occurring is the paramount goal underlying any HACCP system." HACCP prerequisite programs, the foundation upon which HACCP systems are built, include sanitation recommendations relating to facilities, supplier control, specifications, production equipment, cleaning and sanitizing, personal hygiene, training, chemi-

cal control, receiving, storage, shipping, and pest control.

Management plays a vital role in determining the level of sanitation within foodservice operations (9) and the degree to which employees follow basic prerequisite programs and HACCP. To be certain that food safety programs are successful, managers should train employees in food safety, empower them to make decisions regarding food safety, and encourage them to take leadership roles in implementing these programs (2, 13, 14, 15). To do this, managers and employees must be knowledgeable about factors that contribute to foodborne disease and should have a full understanding of HACCP practices that prevent them (3).

There is little reported research related to HACCP prerequisite programs and implementation in restaurants. To date, research has been conducted on costs of implementing HACCP in commercial restaurants (1) and restaurant managers' self-

reported presence of prerequisite and HACCP programs in independent restaurants (13). However, self-reported data should be viewed with caution because misconceptions are common among restaurant managers about what HACCP actually is, what HACCP requires in terms of prerequisite programs, and what it means to fully implement a HACCP program.

Because there is a paucity of research on restaurant practices other than those that are self reported, perceptions of other additional constituent groups are needed. Thus, the purpose of this study was to obtain baseline data about the presence of HACCP and prerequisite programs in chain and independent restaurants in Iowa and Kansas from the perspective of sanitarians who inspect restaurants. Specific objectives were to determine if chain and independent restaurants have prerequisite programs in place that are necessary for HACCP implementation; to assess HACCP components that are already in place in restaurants; to compare the existence of prerequisite and HACCP programs in chain and independent operations; and to determine barriers that impede prerequisite program and HACCP implementation.

METHODS

The 3-part questionnaire used for this study was a modified version of the questionnaire developed by Roberts and Sneed (13). Part I asked sanitarians to estimate the percentage of independent and chain restaurants that had implemented prerequisite and HACCP programs and to indicate if there had been improvement within the last five years. A 5-point Likert-type rating scale used anchors of no improvement, little improvement, improved, very improved, and much improved. Part II determined sanitarians' perceptions of food safety training needs of restaurant employees. Part III asked demographic questions about the sanitarian and the number of independent and chain restaurants inspected annually. The questionnaire took approximately 15 minutes to complete. The Iowa State University and Kansas State University Committees on the Use of Human Subjects in Research approved the research protocol and questionnaire.

Iowa sanitarians (n = 103) were mailed a cover letter and questionnaire, along with a postage-paid return envelope. An identification code was assigned to each questionnaire for follow-up purposes. A second letter and questionnaire were mailed to non-respondents to in-

TABLE 2. Sanitarians' perceptions of the percentage of chain and independent restaurants with prerequisite and HACCP programs (n = 54)

Practice ^a	Total	
	Chain Mean % ± SD % ^b	Independent Mean % ± SD % ^b
Cleaning & Sanitizing		
All employees trained on cleaning and sanitation procedures	59 ± 32	36 ± 28*
Written specifications for cleaning and sanitizing equipment	62 ± 28	20 ± 24**
Chemical Control		
Documented procedures for chemical storage	52 ± 33	9 ± 14**
Equipment		
Equipment certified by the National Sanitation Foundation (NSF)	73 ± 27	40 ± 30**
Preventative maintenance schedules	53 ± 29	15 ± 21**
Equipment temperature calibration schedules	36 ± 31	8 ± 13**
Temperature logs for all cooling equipment	34 ± 27	5 ± 8**
Temperature logs for all heating equipment	38 ± 28	5 ± 8**
Facilities		
Written specifications for cleaning the facility	67 ± 30	28 ± 28**
A flow that minimizes cross contamination	43 ± 31	14 ± 22**
Food Production		
Procedures for checking the internal temperature of foods while cooking	65 ± 27	34 ± 23**
Procedures for checking the internal temperature of cooked foods	64 ± 28	32 ± 27**
Standardized recipes with critical control points	32 ± 29	4 ± 9**
Personal Hygiene		
A written policy on handwashing	61 ± 32	17 ± 26**
A written policy on the use of gloves	56 ± 30	12 ± 19**
A written policy on the use of hair restraints	50 ± 35	9 ± 13**
Pest Control		
Routine spraying by a pest control operator	84 ± 19	60 ± 27**
Receiving and Storage		
Thermometers in refrigerators	86 ± 14	74 ± 23**
Food dating and labeling procedures	79 ± 16	59 ± 23**
Thermometers in freezer	72 ± 27	53 ± 30**
Procedures to assure potentially hazardous foods are refrigerated quickly upon receiving	56 ± 31	26 ± 28**
Procedures to check temperatures when receiving foods	33 ± 24	8 ± 14**
Thermometers in dry storage	25 ± 26	10 ± 17**
Specifications		
Written specifications for all ingredients and food products	41 ± 33	7 ± 14**
Supplier Control		
Assurance from suppliers that they follow HACCP or good manufacturing practices	35 ± 31	9 ± 19**
Procedures for checking the condition of the supplier's delivery trucks (i.e., sanitation, temperature)	29 ± 27	10 ± 18**
Training		
All employees trained on personal hygiene	59 ± 32	34 ± 28**
All employees trained on safe food handling procedures	58 ± 31	27 ± 23**
HACCP		
Temperature logs to record all end point cooking temperatures	46 ± 29	8 ± 14**
Food product flow charts	34 ± 29	5 ± 13**
A comprehensive HACCP plan	22 ± 22	2 ± 5**
HACCP Team	14 ± 19	1 ± 3**

^aThe stem "% of Restaurants in which Implemented" was used for all questions

^bMean Percentage ± Standard Deviation

*P<.05

**P<.001

crease response rate. The Kansas sample ($n = 44$) was asked to complete the questionnaire at a statewide training session.

Data were analyzed by use of SPSS for Windows 11.5. Descriptive statistics (frequencies, means, and standard deviations) and pairwise t-tests were used for data analysis. Reliability analysis was conducted on the scale in Part I of the survey for both independent and chain restaurants; the alpha coefficients were .91 and .94, respectively. In analyzing data, the type I error rate for all comparisons was set at .05.

RESULTS AND DISCUSSION

Characteristics of the sanitarians

A total of 36 sanitarians from Iowa responded, for a response rate of 35%. Eighteen Kansas sanitarians completed the questionnaire, for a response rate of 41%. Characteristics of sanitarians responding to the questionnaire are presented in Table 1. The majority of sanitarians inspected 300 or fewer operations each. Two sanitarians inspected more than 900 operations each. On average, each Kansas sanitarian inspected more foodservice operations than did each Iowa sanitarian ($P = .008$).

Prerequisite programs and HACCP implementation

Ten prerequisite programs were explored: chemical control, cleaning/sanitizing, equipment, facilities, food production, specifications, supplier control, pest control, receiving and storage, and training. Table 2 presents mean percentage estimates of the chain and independent restaurants with prerequisite and HACCP programs in place. The prerequisite program most often lacking in independent restaurants was a system of standardized recipes with critical control points (4%). In contrast, in the Roberts and Sneed (13) study in which restaurant operators identified which programs were or were not in place, 75% of the managers stated that their operation had standardized recipes with critical control points. Sanitarians estimated the placing of thermometers in refrigerators as the practice most often implemented in independent restaurants (74%); in a survey of independent restaurant managers, 100% of the managers surveyed indicated compliance in this area (13).

For chain restaurants, sanitarians indicated that the practice most often implemented was the placing of thermometers

in refrigerators (86%) and that the practice least often implemented was the placing of thermometers in dry storage area (25%). Sanitarians identified having a HACCP team as the lowest implemented practice related to HACCP in both independent and chain operations.

Paired samples t-tests were conducted on the mean percentages related to prerequisite and HACCP programs to determine whether chain or independent restaurants differed in the percentages of programs implemented. In all categories, results indicated that chains have more prerequisite and HACCP programs implemented than their independent counterparts.

Table 3 presents data regarding the improvement of chain and independent restaurants over the past five years. For the majority of prerequisite programs, sanitarians noted very little improvement. Moreover, even though chain restaurants exceed their independent counterparts in the percentage of food safety practices implemented, chain operations have not improved much over independent restaurants within the past five years. Both types of restaurants have improved most in food dating and labeling practices and use of thermometers in refrigerators.

When pairwise comparisons are made between chain and independent restaurants for improvement within the past five years, figures for chains were higher in all but one category, routine spraying by a pest control operator. Chain restaurants improved the most in food dating and labeling procedures, and independent operations improved the most in placing thermometers in refrigerators.

When sanitarians were asked what food safety practices were most often lacking in restaurants, handwashing and personal hygiene were mentioned by most sanitarians. Taking and recording temperatures, monitoring hot and cold holding temperatures, and training were other food safety practices that were found to be lacking.

Barriers to implementation

Sanitarians' perceptions of barriers to implementing prerequisite and HACCP programs in restaurants are presented in Table 4. The greatest perceived barriers were employee knowledge and time, which is similar to findings of Roberts and Sneed (13) in their study of independent restaurant managers. These results also mirror findings of barriers in school foodservice, where Hwang, Almanza, and

Nelson (10) identified time to establish the HACCP program, time and labor cost to run the HACCP program on a daily basis, training funds, and union problems as barriers to implementation. These results also were consistent with findings of Youn and Sneed (15). A national random sample of school foodservice directors reported that employee training (70%), employee motivation and time (66%), and not having a HACCP plan (62%) were all important barriers that needed to be overcome.

CONCLUSIONS

Results of this study indicate that important food safety practices relating to prerequisite programs and HACCP implementation need to be implemented in both Iowa and Kansas restaurants. While some practices would require training for both employees and managers, some practices, such as written specifications for cleaning and sanitizing equipment, documented procedures for chemical storage, written policies on handwashing, and use of hair restraints and gloves, are simple to implement and would require few resources.

When chain and independent restaurants are compared, it is evident that chain operations implement more food safety practices. Chain restaurants often have the support of a corporate office to aid in the development and implementation of food safety programs. Additionally, in some chains, food safety requirements are more stringent than state requirements, forcing managers to implement these programs. Managers in independent restaurants are faced with great challenges to implementing food safety and HACCP programs. Employee knowledge, time, and manager knowledge are the top three barriers identified in this study. University extension, local and national restaurant associations, and state health departments can focus efforts on foodservice employee education and provide HACCP training for managers. Local and national restaurant associations should focus efforts on developing standardized food safety systems that could be adapted and implemented by independent operators and managers.

Sanitarians can play a key role in improving food safety in restaurants. Through the inspection process, food safety issues can be brought to the attention of restaurant managers. Sanitarians could provide referrals and resources specific to the needs of the operation; however, they have insufficient time to pro-

TABLE 3. Improvement of prerequisite and HACCP programs in chain and independent operations within the last 5 years

Characteristic ^a	Chain Total (N=54) ^{***}						Independent Total (N=54) ^{***}					
	Mean ±SD ^b	Frequency of Responses ^c					Mean ±SD ^b	Frequency of Responses ^c				
		NI	LI	I	VI	MI		NI	LI	I	VI	MI
Cleaning & Sanitizing												
All employees trained on cleaning and sanitation procedures	2.8 ± 1.0	5	10	26	5	3	2.3 ± 0.8**	6	22	18	2	0
Written specifications for cleaning and sanitizing equipment	2.6 ± 1.0	8	13	20	9	0	1.9 ± 0.9**	16	23	11	0	0
Chemical Control												
Documented procedures for chemical storage	2.4 ± 0.9	9	17	18	5	0	1.7 ± 0.7**	22	22	6	0	0
Equipment												
Equipment certified by the National Sanitation Foundation (NSF)	2.8 ± 1.0	5	13	18	9	2	2.2 ± 1.0**	12	17	17	2	1
Temperature logs for all heating equipment	2.5 ± 1.0	10	16	14	10	0	1.5 ± 0.7**	29	15	6	0	0
Temperature logs for all cooling equipment	2.5 ± 1.0	10	16	15	9	0	1.5 ± 0.7**	29	15	6	0	0
Preventative maintenance schedules	2.4 ± 0.8	8	16	22	3	0	1.8 ± 0.8**	20	18	12	0	0
Equipment temperature calibration schedules	2.1 ± 0.8	14	19	15	1	0	1.5 ± 0.6**	28	20	2	0	0
Facilities												
Written specifications for cleaning the facility	2.8 ± 1.1	8	9	20	11	1	2.1 ± 0.9**	14	1	19	12	4
A flow that minimizes cross contamination	2.4 ± 0.8	8	18	20	3	0	1.6 ± 0.5**	26	16	8	0	0
Food Production												
Procedures for checking the internal temperature of cooked foods	3.0 ± 1.0	4	11	21	12	2	2.4 ± 0.9**	6	22	17	2	2
Procedures for checking the internal temperature of foods while cooking	3.0 ± 1.1	6	8	22	12	3	2.6 ± 0.9**	4	18	22	5	1
Standardized recipes with critical control points	2.3 ± 0.9	8	20	14	5	0	1.4 ± 0.6**	30	16	2	0	0
Personal Hygiene												
A written policy on handwashing	2.9 ± 1.0	5	9	21	13	1	2.1 ± 1.0**	18	17	12	3	1
A written policy on the use of gloves	2.9 ± 0.9	5	7	26	10	1	2.0 ± 0.9**	18	15	14	2	0
A written policy on the use of hair restraints	2.4 ± 0.9	8	15	22	3	0	1.7 ± 0.7**	23	22	6	0	0
Pest Control												
Routine spraying by a pest control operator	3.0 ± 1.1	6	9	17	11	4	2.8 ± 1.1	4	17	19	3	6

TABLE 3. (continued) Improvement of prerequisite and HACCP programs in chain and independent operations within the last 5 years

Characteristic ^a	Chain Total (n=54) ***					Independent Total (n=54) ***						
	Mean ±SD ^b	Frequency of Responses ^c					Mean ±SD ^b	Frequency of Responses ^c				
		NI	LI	I	VI	MI		NI	LI	I	VI	MI
Receiving and Storage												
Thermometers in refrigerators	3.4 ± 0.9	1	8	15	22	5	3.2 ± 0.9*	2	6	27	11	4
Food dating and labeling procedures	3.5 ± 0.8	1	4	18	24	4	3.1 ± 1.1**	3	11	17	14	5
Thermometers in freezer	2.9 ± 1.0	6	9	22	10	2	2.6 ± 1.0*	5	17	22	3	3
Procedures to assure potentially hazardous foods are refrigerated quickly upon receiving	2.6 ± 0.9	6	17	20	8	0	2.2 ± 0.9*	11	20	16	3	0
Procedures to check temperatures when receiving foods	2.2 ± 1.0	15	14	17	3	1	1.6 ± 0.7**	25	21	5	0	0
Thermometers in dry storage	2.1 ± 1.0	17	16	12	4	1	1.7 ± 0.9*	28	12	6	3	0
Specifications												
Written specifications for all ingredients and food products	2.3 ± 0.9	12	14	20	3	0	1.5 ± 0.6**	33	13	4	0	0
Supplier Control												
Assurance from suppliers that they follow HACCP or good manufacturing practices	2.3 ± 1.0	14	15	17	4	1	1.5 ± 0.6**	30	17	4	0	0
Procedures for checking the condition of the supplier's delivery trucks (i.e., sanitation, temperature)	2.0 ± 0.9	16	20	13	2	0	1.7 ± 0.7*	21	25	5	0	0
Training												
All employees trained on personal hygiene	2.9 ± 0.9	3	11	25	10	1	2.5 ± 0.7**	5	20	24	2	0
All employees trained on safe food handling procedures	2.8 ± 1.0	6	9	26	7	2	2.3 ± 0.7**	7	22	21	1	0
HACCP												
Temperature logs to record all end point cooking temperatures	2.7 ± 1.1	9	11	19	11	1	1.9 ± 0.9**	17	23	7	1	1
Food product flow charts	2.3 ± 0.9	10	19	16	3	1	1.4 ± 0.7**	33	13	3	1	0
A comprehensive HACCP plan	2.1 ± 0.9	14	18	13	3	0	1.2 ± 0.5**	39	9	1	0	0
HACCP Team	1.8 ± 0.8	18	17	11	0	0	1.2 ± 0.4**	41	6	1	0	0

^aThe stem "How Improved in Last 5 Years?" was used for all questions

^bMean Percentage ± Standard Deviation

^cA five-point scale was used for responses. No Improvement (NI) was coded as a 1; little improvement (LI) as 2; improved (I) as 3; very improved (VI) as 4; and much improved (MI) as 5

*P ≤ 0.05

**P ≤ 0.01

***Due to non-respondents, totals may not equal 54

TABLE 4. Sanitarians' perceptions of barriers to implementation of prerequisite and HACCP program components (n = 54)

Characteristic ^a	Mean ± SD ^b	Frequency of Responses ^c				
		1	2	3	4	5
Employee knowledge	4.3 ± 1.0	2	2	10	12	27
Time	4.1 ± 1.1	5	11	11	11	15
Manager knowledge	4.0 ± 1.1	2	0	8	13	31
Lack of training materials	3.7 ± 1.3	4	5	12	12	19
Money	3.4 ± 1.4	2	3	11	18	20

^aThe stem "What obstacles do restaurants have to HACCP implementation?" was used for all questions

^bMean ± Standard Deviation

^cA five-point scale was used for responses, no obstacle (1) to great obstacle (5)

^dDue to non-respondents, totals may not equal 54

vide education to individual operators. Therefore, it is imperative that sanitarians have access to a list of resources and people that could provide the needed information, training, and education for managers and employees.

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EDITOR'S NOTE:

In the July issue of *FPT* on page 522 the author's addresses were listed incorrectly. The correct addresses are:

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We apologize for this error.

Outbreak of *Salmonella* Enteritidis Infection Associated with Crabcakes from a Church Fundraiser — Maryland, 2003

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SUMMARY

Salmonella Enteritidis (*S. Enteritidis*) infection, which can lead to fever, diarrhea, and nausea within 12–36 hours after exposure, is a cause of foodborne outbreaks. Despite overall declines in *S. Enteritidis* outbreaks, outbreaks associated with raw or undercooked eggs continue to occur. This report describes a large crabcake-associated outbreak of *S. Enteritidis* linked to a church fundraiser. We conducted a cohort study of event attendees, performed an environmental investigation, and tested stool and food samples by culture, PFGE, and phage typing. Of the estimated 400 attendees, 189 were interviewed and 104 cases identified. Twenty (19%) patients had laboratory-confirmed *S. Enteritidis* infection. Crabcakes were the only food significantly associated with illness; all ill persons had eaten crabcakes (RR= undefined; $P < .001$). *S. Enteritidis* was isolated from uncooked crabcake samples. PFGE demonstrated indistinguishable patterns for all isolates; phage typing was identical for all samples. Crabcakes had been prepared with raw shell eggs and thermometers had not been used to measure the internal temperature of crabcakes. Cooking times appeared inadequate. This *S. Enteritidis* outbreak was associated with crabcakes prepared by an unlicensed organization. We recommend increased emphasis on education of unlicensed organizations regarding safe food-handling techniques.

INTRODUCTION

Salmonella Enteritidis (*S. Enteritidis*) infection, which can lead to fever, diarrhea, and nausea within 12–36 hours after exposure, is a cause of foodborne outbreaks. Although foodborne illnesses caused by *S. Enteritidis* have been decreasing over the past 10 years, infections with *S. Enteritidis* continue to occur (1). Many of these infections are associated with uncooked eggs and foods containing raw or undercooked eggs (1, 7). Crabcakes, which are a delicacy in Maryland, often contain raw eggs as an ingredient. From 1998 to 2003, crabcakes were implicated only once as a possible source of *S. Enteritidis* infection during a foodborne outbreak in Maryland (Maryland Department of Health and Mental Hygiene [DHMH] Division of Outbreak Investigation, unpublished data, 2004). Crabmeat-containing dishes have been associated with 11 other foodborne outbreaks; however, *S. Enteritidis* was not isolated in any of these outbreaks (DHMH Division of Outbreak Investigation, unpublished data 2004). Crabcakes are prepared and served in a variety of places such as homes and restaurants, and at large public events, including those held by licensed caterers

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TABLE 1. Attack rates for event attendees (N=189), Kent County, Maryland, August 2003

	ILL	Well	Total	Attack Rate (%)	Relative Risk	95% C.I.
Sex						
male	50	32	82	61	1.21	0.94-1.56
female	54	53	107	51	ref	—
Age (years)						
0-17	8	8	16	50	ref	—
18-44	20	15	35	57	1.14	0.65-2.02
45-64	44	40	84	52	1.05	0.62-1.78
>=65	32	22	54	59	1.19	0.69-2.03
Date of Meal						
August 22, 2003	94	81	175	54	ref	—
August 23, 2003	3	0	3	100	1.86	1.62-2.14
Location of Meal						
eat in	68	60	128	53	ref	—
take out	36	25	61	59	1.11	0.85-1.45

and unlicensed but "excluded" organizations. This report describes a large foodborne outbreak of *S. Enteritidis* associated with crabcakes served at a church fundraiser by an excluded organization.

Maryland law defines "excluded" organizations as nonprofit, religious, or charitable organizations that are excluded from food service licensing requirements because they do not regularly serve food to the public more often than 4 days per week, although once a year, they are allowed to serve food to the public for up to 14 consecutive days. Although excluded organizations are not required to have a license, they are required to have a permit to hold an event and are not exempt from proper food safety requirements or inspections (5). In Maryland, during 1998-2003, 14 (2%) of the 660 foodborne outbreaks reported were associated with unlicensed or excluded organizations (DHMH Division of Outbreak Investigation, unpublished data 2004).

Outbreak recognition

On August 26, 2003, the Kent County Health Department (KCHD) notified DHMH Division of Outbreak Investigation of six cases of gastroenteritis in attendees of a church fundraiser held in Kent County, Maryland. The event was

held on August 22, 2003, from 3 pm to 7 pm, and served approximately 400 persons, including residents of Maryland, Pennsylvania, and Delaware. Food was available to eat at the church or for take-out. Among the six initial cases reported, symptoms included diarrhea, abdominal cramps, and fever; two of the patients were hospitalized with dehydration. Given the initial information, these cases were thought to be linked to the church fundraiser. KCHD and DHMH initiated an investigation to determine the extent and etiology of the outbreak and to implement control measures.

METHODS

We attempted to identify the entire cohort of event attendees. Attendees were identified by use of the church roster, a list of food preparers, a list of persons who had pre-ordered meals, and by contacting persons who had been identified by other attendees. Cases were also identified through the local hospital's emergency department, private physicians and meetings held with the event organizers. A notification was placed on the Centers for Disease Control and Prevention (CDC's) Epidemic Information Exchange (*Epi-X*) notifying other state health departments of the outbreak and asking them to assist with identifying any salmonellosis cases that might have been related to

the event. The local newspaper also published an article about the outbreak. A case was defined as new onset of diarrhea or vomiting within 1 week of eating food prepared for the church event. A confirmed case had laboratory evidence of *S. Enteritidis* infection.

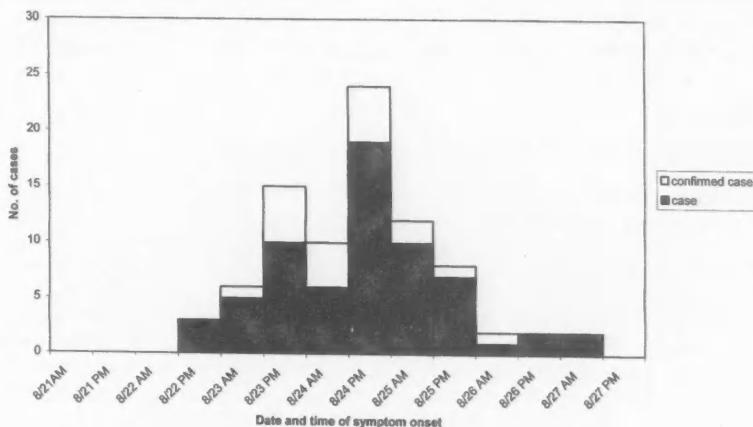
To identify the specific food exposure, we conducted a cohort study involving attendees of the church event and persons who ate food from the event. A standard questionnaire assessing possible food exposures and clinical information was created and administered by telephone to all identified event attendees. Persons who prepared food for the event or ate food served at the church were asked to provide stool samples for testing, regardless of symptoms.

A KCHD sanitarian conducted an environmental inspection of the church and reviewed the facility's permitting procedures and techniques regarding food preparation, holding and cooking. The sanitarian also obtained product labels and receipts for the food products used in the preparation of the meal.

Laboratory testing

Stool specimens were obtained from event attendees who agreed to submit stool specimens through the local health department, private hospitals, or laboratories, and specimens were sent to the

FIGURE 1. Cases of gastroenteritis, by date and time of symptom onset, church fundraiser, Kent County, Maryland, August 2003*



*Date and time of onset were available for 84 cases. *Salmonella* Enteritidis was confirmed by stool culture in 19 cases.

DHMH Laboratories Administration, the state public health laboratory, for confirmation and serotyping. Samples of leftover food were collected by KCHD and sent to the DHMH Laboratories Administration for culture. All specimens, both human and food, were tested for enteric bacterial pathogens, including *E. coli*, *Campylobacter*, *Shigella*, and *Salmonella*. Pulsed-field gel electrophoresis (PFGE) was performed at DHMH and isolates were sent to CDC for phage typing.

Statistical methods

Univariate analysis was performed using Epi Info 2002 version 3 (3). Epi Info is a free statistical software program available from CDC that allows public health professionals to design questionnaires, manage information and analyze data. Food-specific attack rates (AR) and relative risks (RR) were calculated for all foods served during the event. A food-specific attack rate (AR) is the percentage of individuals who ate a given food and subsequently became ill. A relative risk (RR) is defined as the attack rate among persons who ate a particular food divided by the attack rate among persons who did not eat the food.

RESULTS

Case finding

Event organizers estimated that approximately 400 persons attended or ate take out food from the event at the church. KCHD was able to contact and interview, using a standard questionnaire, 189 per-

sons who had eaten food prepared at the church event. One-hundred four (55%) attendees met the case definition. Symptom onsets ranged from August 22 to August 27, 2003 (Fig. 1). Symptoms included diarrhea (99% of case-patients), vomiting (15%), abdominal cramps (74%), fever (57%), and bloody diarrhea (2%). The median incubation period was 44 hours (range: 1–112 h). The median duration of illness was 6 days (range: 2–13 days). Forty-six (44%) persons sought medical care for their symptoms and 12 (12%) were hospitalized. None died. Fifty-four (AR=51%) patients were females. The mean age of patients was 53.3 years (range: 4–92 years, median: 57 years). Twenty-four (23%) case-patients reported only ordering takeout food. Fifty-three percent of people who ate at the event became ill, and 54% of those who became ill ate on August 22, 2003 (Table 1). There were no significant differences in sex, age, or location of meal among those who were ill and those who were well.

Cohort study

A cohort study was conducted in order to identify which foods likely led to illness. Foods served included crabcakes, fried fish, potato salad, beets, applesauce, bread, tomatoes, molasses, and iced tea. Food-specific ARs and RRs were calculated for all foods served; however, illness was found to be substantially and statistically significantly associated only with crabcake consumption (AR = 57.8%) (Table 2). All 104 ill persons ate

crabcakes, (RR = undefined; $P < 0.001$, by Fisher's exact test).

We attempted to quantify the relationship among the event attendees, between "dose" (defined as the number of crabcakes eaten) and the likelihood of illness. In addition, the relation between the date the meal was eaten and where food was eaten (defined as "eat-in" or "take out") was examined. Overall, no statistically significant differences were found with respect to the likelihood of illness and the number of crabcakes eaten or the location of the meal. A small but statistically significant increase in illness was noted for the three individuals who ate food on August 23rd.

Environmental investigation

The church had no history of outbreaks and had been properly permitted to hold the event. Food preparation procedures had been reviewed and documented by the local health department before the event. The church kitchen was inspected by a KCHD sanitarian on August 27, 2003. No critical or non-critical sanitary violations were noted at that time.

Preparation of implicated foods

A detailed review of food handling procedures was obtained for the preparation of the potato salad and the crabcakes after it was determined that unpasteurized whole shell eggs and crabcakes were the most likely potential sources of *S. Enteritidis*. The same unpasteurized whole shell eggs were used in the preparation of the potato salad and the crabcakes. The review of preparation of the potato salad did not reveal any potential lapses in proper food handling or preparation. The potato salad dressing was prepared on August 14, 2003 with cracked whole shell eggs, vinegar, water, sugar, and salt. It was heated to boiling and then simmered for 20–30 minutes. The dressing was then refrigerated until August 20, 2003, when it was mixed with the potatoes and then re-refrigerated until the day of the event.

The crabcakes were prepared on August 7, 2003, 2 weeks in advance of the event, by approximately 15 members of the church congregation, none of whom were reportedly ill at the time of preparation. Lump fresh steamed crab meat (406 lbs) was received on ice from a permitted processor. Ten-pound batches of crabcakes were prepared in tubs in assembly-line fashion, with 2–3 people at each station responsible for removing any remaining shells, adding the ingredients (35 dozen unpasteurized whole shell eggs, salt, pepper, mustard, margarine, and bread crumbs), mixing and forming the

TABLE 2. Food-specific attack rates for event attendees (N=189), Kent County, Maryland, August 2003

Food	Eaten			Not Eaten			Relative Risk	95%CI	P-value ^a
	ILL	Total	%	ILL	Total	%			
Crabcakes	104	180	57.8	0	9	0.0	undefined	undefined	<0.001
Fried Fish	77	171	45.0	9	15	60.0	0.77	0.59-1.42	0.92
Potato salad	84	152	55.3	19	33	57.6	0.96	0.69-1.33	0.96
Bread/biscuit	88	158	55.7	14	23	60.9	0.92	0.64-1.31	0.81
Tomato wedge	41	74	55.4	54	100	54.0	1.03	0.78-1.35	0.98
Applesauce	54	107	50.5	41	68	60.3	0.84	0.64-1.10	0.26
Molasses	47	93	50.5	42	73	57.5	0.88	0.66-1.16	0.46
Iced tea	49	99	49.5	38	59	64.4	0.77	0.58-1.01	0.10
Beets	34	60	56.7	8	10	80.0	0.71	0.48-1.04	0.30

^a Yates corrected P-value used for all food items except crabcakes and beets, where the Fisher exact 2-tailed P-value used.

cakes, and placing the cakes on trays to be frozen until the day of the event. Eggs were cracked by hand and mixed together for each batch. Tubs were washed between batches. Several persons did not wear gloves during the preparation of the crabcakes.

On the day of the event, initial batches of frozen crabcakes were placed unthawed in a deep fryer with a temperature setting of 163°C (325°F) and deep-fried for 7-8 minutes. According to the food preparers, crabcakes were considered cooked when a fork pierced them easily, after which they were placed in a holding oven at 149°C (300°F) until served, approximately 45 minutes to one hour later. Approximately one and one-half hours after the event began, subsequent batches of frozen crabcakes were cooked for 9-11 minutes at the same temperature setting as the first batch and then served immediately. Thermometers were not used to check the temperature of the frying oil or the internal temperature of the crabcakes before they were served. None of the food preparers were ill before or during food preparation; however, two food preparers became ill after eating food from the event.

Traceback investigation

No crab meat or unused eggs were available for further testing; however, product labels and receipts for the food products were forwarded to the United States Food and Drug Administration (FDA), where a traceback investigation was initiated by investigating the suppliers of

these products. The traceback investigation traced the eggs to two distributors in a neighboring state; because no other reported outbreaks of *S. Enteritidis* had been associated with these distributors, the federal traceback investigation was closed.

Laboratory investigation

Twenty-eight stool specimens were submitted to the DHMH State Laboratory, of which 23 were from cohort study participants. *S. Enteritidis* was isolated from a total of 23 samples, of which 20 were from cohort study participants. *S. Enteritidis* was isolated from two of four event attendees who also participated in the crabcake preparation. A positive culture was obtained on one attendee who was not involved in the food preparation and was asymptomatic and therefore did not meet the case definition.

From the food specimens, *S. Enteritidis* was isolated by culture from unserved frozen uncooked crabcakes and an attendee's leftover plate of food. Enteric bacterial testing, which included testing for *Salmonella*, was negative for a sample of leftover potato salad from that plate. Clinical and food isolates demonstrated the same PFGE pattern and testing conducted at CDC revealed the same phage type, 13A, for clinical and food isolates.

DISCUSSION

This was a large outbreak of salmonellosis attributed to *S. Enteritidis* associated with crabcake consumption at an

excluded and unlicensed church event, which resulted in 104 cases of gastroenteritis. The epidemiologic investigation demonstrated that consumption of crabcakes was associated with infection. Although we are unable to determine the ingredient responsible for infection, the unpasteurized whole shell eggs used to prepare the crabcakes were the most likely ingredient contaminated with *Salmonella*. *S. Enteritidis* infection associated with seafood is rarely reported in the literature and it is unlikely that the crabmeat was the source of *S. Enteritidis* (6). A previous study found that no *Salmonella* was isolated from samples of fresh hand-picked crab meat taken from processing plants in Virginia (9). On the basis of the environmental and laboratory findings, we can speculate that the potato salad, which also contained eggs, was prepared in a manner that was adequate to kill *S. Enteritidis*. However, preparation of the crabcakes did not follow standard guidelines for proper food handling, which include measurement of the temperature to ensure that an internal temperature of at least 68°C (160°F) is achieved. Therefore, a combination of events, including improper food handling and preparation, contaminated whole shell eggs, pooling of eggs and inadequate cooking might have resulted in foodborne illness (4). These findings are consistent with other documented *S. Enteritidis* outbreaks, in which improper preparation and inadequate cooking of egg-containing dishes resulted in human illness (1,2,7).

Limitations

There were several limitations to the cohort study for this outbreak. Interviewing techniques varied among interviewers and missing data was assumed to be a "no" or negative response. Specifically, symptom data was collected in aggregate but would not have affected the results of the investigation. Because those who were ill were more likely to contact the KCHD and because we were unable to identify and include the entire cohort, selection bias is possible. Based on these limitations, calculated attack rates might have varied.

In addition, we were not able to obtain stool specimens on all persons involved in the crabcake preparation. Although none of the workers reported being ill at the time of the food preparation, we can not ensure that one or more of the food workers were not infectious with *S. Enteritidis*. Crabmeat was also not available for laboratory testing; therefore, we cannot with certainty rule out this as the source of the *S. Enteritidis*.

RECOMMENDATIONS

This outbreak demonstrates that an excluded organization can be responsible for a large foodborne outbreak. Awareness of proper food safety requirements might be inadequate among food workers in these types of organizations. Nationwide efforts have been instituted to ensure the quality of eggs from farms to retail distributors to the consumer; however, information and education targeting the general community (e.g., community and religious groups) should be enhanced (8). All excluded organizations should be required to keep records of workers involved in food preparation, as well as keeping invoices and food labels. In accordance with DHMH guidelines, local health departments should review proper food-handling techniques with excluded organizations that hold annual events, and this should occur particularly if the food preparers are different each year (5). In addition, taking final internal temperatures of cooked foods should be recommended when any type of meat, seafood, or poultry is prepared in keeping with proper food safety regulations (5, 10). The Food and Drug Administration's Model Food Code recommends the use of either in-shell pasteurized eggs or pasteurized egg products as a substitute for shell eggs when preparing certain egg-containing dishes (4). Excluded organizations that

are preparing large quantities of food and pooling large numbers of eggs should also be counseled to use pasteurized eggs or egg products, to reduce the risk of potential foodborne illness related to *S. Enteritidis*. Although a small proportion of all reported foodborne outbreaks are associated with excluded or unlicensed organizations, health departments should more closely monitor events held by unlicensed organizations, because these groups often serve food to large numbers of persons, and often have food preparers who may not be trained in proper food handling and preparation practices, and because other large outbreaks associated with these type of organizations have been reported (DHMH Division of Outbreak Investigation, unpublished data, 1997). Furthermore, FDA, USDA and state and local health departments should increase efforts to target these organizations regarding food safety education initiatives, including safe food handling and preparation practices.

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Common Themes of Safe Food-handling Behavior among Mature Adults

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SUMMARY

Foodborne illness is a significant problem in the United States, especially among older adults, many of whom are at greater risk of illness because of lowered nutritional status, weakened general health, and decreased immune system function. The present study investigated the characteristic themes that United States residents 65 years old or older identified regarding food-related attitudes and behaviors, and antecedent variables that likely influence behavior choices. This study used focus groups to explore the perceived risks of foodborne illness, attitudes, and personal knowledge of safe food handling. Results indicated that mature adults have a general knowledge of safe food-handling behaviors but required further education by food safety advocates in specific subject areas to combat maladaptive food handling behaviors. Based on the findings, further research also needs to be conducted to determine the appropriate communication methods, activities, and timelines for mature adults.

INTRODUCTION

The number of adults 65 years old and older is expected to double, from the current 35 million to more than 70 million individuals, by 2030 (43). Mature adults (> 65 years of age) constitute a growing percentage of the US population and are at a higher risk for foodborne illness because of weakened general health, lowered nutritional status and decreased immune system function, and are more likely to suffer sequelae and death due to infection than the general population (21, 22, 38, 43).

Illness caused by the improper handling of food can often be prevented by an individual's behavior, provided that appropriate behaviors are adopted. Foodborne illness constitutes a serious and growing public health threat in the United States (4, 15, 41). More than 75 million cases of foodborne illness, 325,000 hospitalizations and 5,000 fatalities in the United States are caused annually through the consumption of food contaminated by bacteria, viruses and parasites (25). According to the National Institute of Allergy and Infectious Diseases, more than 250 known foodborne diseases exist (28).

In an effort to communicate effective food-handling practices to this high-risk and hard-to-reach mature adult population, several outreach programs have been developed, the success of which hinged on the willingness of the population to adopt the recommended behaviors. Studies have found that food-safety compliance is low among all American

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adults and have suggested that past communication programs about food safety have been less than effective (3, 10, 47). Although prior research has examined food handling behaviors of individuals 65 years old or older (18), the determinants of adaptive behaviors have been explored in very few studies.

According to Bodkin and La Salvia, it is imperative that risk-reduction health campaigns (such as ones focusing on safe food-handling strategies) address the specific characteristics and needs of the target population (6). Medeiros et al. (26) suggest that educational programs should be organized according to five categories: (1) personal hygiene, (2) adequate cooking, (3) avoiding cross-contamination, (4) cold storage/hot-holding, and (5) avoiding foods from unsafe sources. One educational food safety program that has adopted a similar strategy is the Fight BAC® Campaign, which addresses four issues: clean, separate, cook, and chill (13).

Numerous studies of foodborne illness in foodservice establishments have been completed. A 1999 study by the FDA Center for Food Safety and Applied Nutrition determined that 89% of foodborne illness outbreaks could be attributed to workers at foodservice establishments (29). Fatality from foodborne illness among mature adult nursing home residents, many of whom rely on institutional food service, is also much greater than for the general population (30).

Representing a rapidly expanding segment of the US population (13%), mature adults also account for, at a minimum, 30% of all health care expenses, annually (24). A mere decade ago, health costs for mature adults for acute listeriosis reached nearly \$45 million (8).

Those concerned with preventive health behaviors, such as adoption of safe food-handling behaviors, often believe that higher perceptions of risk result in adaptive responses towards health threats. In fact, correlations between risk perceptions and adaptive health behaviors have been found in many studies (45, 46).

However, the relationship between perceptions of risks and adaptive responses is not linear. Excessive risk perceptions may interact with perceptions of self in dynamic ways. The Extended Parallel Process Model (EPPM) explicitly considers perceptions of risk to be a determinate of preventive health behaviors and posits that excessive feelings of fear in combination with low self-efficacy (belief that one can do little or nothing to

alter a threat) result in the rejection of health messages and are associated with fatalism and risky behaviors (45).

Based on the factors, or constructs, that influence perceptions of risk, Sandman (34) argued that microbes in food represent a high hazard that elicits low outrage. According to psychometric approaches to understanding risk perception, home-based food-safety issues have characteristics that result in lay people psychologically underestimating the threats.

Sandman's psychometric approach was questioned by Fife-Shaw and Rowe (12) because the approach analyzes risk across domains, not focusing on one specific domain such as food safety. Fife-Shaw and Rowe conducted a study to identify the factors influencing perceptions of risk associated with a range of food-related hazards. The results supported the work of Slovic, Fischhoff and S. Lichtenstein (37) and Sparks and Shepard (40) suggesting that dimensions associated with severity and awareness were good predictors of risk perceptions — not only associated with hazards across domains but also within the category of food-related hazards.

Two variables of interest in this study were (1) perceptions of risk concerning foodborne illness and (2) self-efficacy, or an individual's perceived ability to successfully negate threats. Bandura defined self-efficacy this way: "An efficacy expectation is the conviction that one can successfully execute the behavior required to produce outcomes. Outcome and efficacy expectations are differentiated, because individuals can believe that a particular course of action will produce certain outcomes, but if they entertain serious doubts about whether they can perform the necessary activities such information does not influence their behavior."

High or low self-efficacy beliefs, Bandura says, affect the extent to which individuals exercise control over the vitality and quality of their health (5). Recent works have examined self-efficacy's association with weight loss (11), immunizations (39), protective sexual behavior (9), nutrition (1), and exercise (32). No studies were found that address self-efficacy as a determinate of safe food handling.

In addition, the prevailing belief is that people will behave in concert with their attitudes regarding a specific behavior (23). However, when situational factors are taken into account and the atti-

tude is specific to the behavior of interest, the relationship between attitudes (47) and behavior is more robust (2).

Dutch researchers Slagen-de Kort, Midden, Aarts and van Wagenberg also looked at adaptive behavior in mature adults focused on self-efficacy. The researchers reported that situation-specific, self-referent belief influenced adaptive behavior and the choice of adaptive behavior strategies both directly and indirectly (36).

The research provided in this project examined perceived risk, attitudes, self-efficacy, and knowledge as variables associated with safe food-handling in those 65 years old and older. The overall goal of the research phase of this project was to understand the characteristic themes identified by United States' residents 65 years old and older identified regarding food-related attitudes and behaviors and to identify antecedent variables that likely influence behavior choices.

METHODS

Eight focus groups were conducted in six Kansas communities with methods following procedures from Krueger (20). Participants in the focus groups were recruited as volunteers through local extension programs and senior centers, and were 65 years old and older. For their participation in the focus group study, each volunteer was given a \$20 incentive payment. The procedures and question route were approved by the Institutional Review Board at Kansas State University.

Focus groups are limited, as they provide qualitative data that is not generalizable to a larger population (because of limited participation and recruitment restrictions). However, this study used the focus groups in a way that supported and complemented the preceding quantitative survey research. The strength of focus groups is the development of insights into a topic and direction toward the development of more quantitative approaches (42). Krueger supports this claim by saying that focus group research is disciplined inquiry, systematic and verifiable, that seeks to provide understanding and insight (20).

Participants were asked a series of questions (in 14 theme-centered areas) about general food safety concerns, the amount of control they felt they had over food they had in their homes, the use of meat thermometers, and how they would likely put new or different food preparation or storage behaviors into practice;

TABLE 1. Examples of theme-centered food-handling safety questions addressed by moderator

Topics	Questions
Food-safety concerns	How serious a problem is food contamination by microorganisms and pathogens?
Control	How much control do you have over the food prepared in your home?
Refrigeration	How quickly do you refrigerate cooked foods, and in what size portions?
Meats	How do you thaw meats? How do you thaw different meats? How do you handle your cutting board when cutting meat?
Risky Foods	How likely are you to eat certain foods that have a greater likelihood of causing foodborne illness (i.e. running yolks and eggs, raw or uncooked seafood)?

they were also asked to elaborate on their sources of information about food safety. The question route was developed on the basis of an earlier nationwide telephone survey (which used a stratified random sample of US residents 65 years old and older) and was designed to further explicate findings from that survey (17).

The route was developed and field tested prior to the conducting of the focus groups, by two of the investigators who have successfully done so previously in other research projects related to risk and food safety perceptions (7, 35, 48). Table 1 presents an example of the theme-centered safe food-handling questions addressed by the moderators. Participants were also asked to provide a reaction to a US Department of Agriculture video and brochure suite "To Your Health! Food Safety for Seniors." Pointed questions were asked about the participants' general impressions of each material, if they felt that the materials addressed mature adults, level of readability, and style. The USDA video and brochure suite provided a short history of safe food-handling in the US, factual information about how to recognize foodborne illness, detailed cooking temperature and refrigerator storage charts, and an explanation of how some people face special risks, in addition to highlighting information about higher-risk foods and eating outside the home (13).

Lastly, participants were asked for their opinions about which statements or messages about safe food handling behaviors would generally reach a mature audience more effectively to resonate with this target audience. They were also asked how they would work to change food safety habits in mature adults and how they would approach the materials used in that capacity.

The eight focus groups were conducted in the eastern and central Kansas communities of Belleville, Eureka, Fredonia, Hutchinson (two focus groups), Olathe (two focus groups), and Washington. Focus-group participants were questioned in groups of five to 10 individuals by an experienced moderator and were asked to respond to each of approximately 30 questions in turn. With the presentation of the USDA video and brochure, each session lasted a total of 60 to 90 minutes and were audio-recorded.

Results were transcribed and data analysis was conducted using the Grounded Theory approach (14). The coding scheme of the verbal protocol analysis was based on concepts generated from existing literature and themes that emerged from the focus groups (14). The data was analyzed using clustered summary tables following procedures of Miles and Huberman (27). After review of the transcripts, the moderator prepared a detailed summary of each focus group discussion and then proceeded to identify the common themes presented by the focus group discussion participants.

RESULTS

Focus group participants cited general cleanliness, microorganisms, food storage, overarching health problems, cooking, and eating out as their overall concerns about food-handling safety. In addition to their overall concerns, participants discussed their perceptions of control over food preparation, including the adaptive behaviors of monitoring, immediate food dating and storage, and the washing of produce. Furthermore, ease, convenience, fear, media exposure, attractive and interesting presentation and a desire to learn were cited as facilitators to

the adoption of safe food-handling behaviors. Obstacles to the adoption of safe food-handling behaviors given by the group participants included cost, time, prior knowledge, food appearance, tradition, skepticism, and habit. Table 2 illustrates these data.

A considerable amount of group discussion time was also spent on the subjects of determining the doneness of meats, the use of meat thermometers and the thawing of meats. Discussion included sub-topics of appearance, texture, cooking tools and methods, level of experience, barriers to using cooking tools, means, time and portions. A common theme provided by the participants centered on cooking methods used from experience coupled with knowledge levels about appropriate meat temperatures and when to use cooking tools such as meat thermometers.

Themes surrounding high-risk foods, including the subjects of avoiding and taking risks, were discussed. Participants cited their dislike of high-risk foods and the appearance of certain foods as reasons to avoid risk. Prior experience, faith in a higher power, the location at which food was purchased, and cooking were mentioned as precipitants to taking risks related to food safety.

Focus group participants indicated that they received the majority of their information about food safety from the Internet and newspapers, Extension flyers and inserts, and health food stores.

After viewing the USDA food safety video, group participants said the material was informative and provided needed repetition of steps, but was lengthy, and at times condescending (addressing them as if they were youth or children) and omitted some information. Participants remarked that they did learn new information through the viewing of the video, however.

TABLE 2. Focus group responses on overall concerns regarding food safety

Topic	Theme	Quote
Cleanliness	• Hand washing at home and public vendors, restaurant servers	"I think my biggest concern for food safety is cleanliness and especially if you like to go to the grocery store."
	• Grocery washing at home (produce, milk cartons, etc.)	"You should at least wipe off or rinse off milk cartons."
	• Food prep surfaces: countertops, cutting surfaces at home and public places	
	• Unclean restaurant dishes	
Microorganisms	• Presence of bacteria, mold, viruses	"One concern that I've had is with bacteria and diseases like hepatitis."
	• Proper thawing	"I watch the dates of food expiration."
	• Proper storage: expiration dates, portion size, time out of refrigerator, food kept too long	"I'm concerned with the amount of time people leave their food on the counter."
	• Proper processing: canning, preservatives used, radiation	
Public Cooking—Restaurants and Vendors; Eating Out	• Correct doneness: Meat and eggs	"We used to use raw eggs a lot in our cooking; we don't do that anymore."
	• Eating raw eggs	"They are preparing this food without gloves and that kind of thing. I am concerned about that."
	• Improper handling (gloves, hairnets, etc.)	
	• Cleanliness	
	• Use of "doggie bags" kept too long without refrigeration	
	• Safety of buffet items	
No concerns		"I don't really worry that much about it."

DISCUSSION

The population of mature adults in the United States will continue to grow throughout the next three decades, and therefore we will see a larger percentage of the population at higher risk for foodborne illness, whether through their own handling of food or through food handling by others. The most resonant concerns emulated by this study's participants were the handling of food by others and hand washing. Unlike previous research by the US Department of Health and Human Services, Administration on Aging, which has shown that people do

not engage in safe practices (25, 43), the focus groups illustrated that mature adults generally had knowledge of safe food-handling behaviors, but did not utilize the adaptive behaviors of refrigerating food promptly or the using of meat thermometers. The participants expressed many legitimate concerns, including lack of control of food preparation, lack of knowledge about cleanliness, and lack of food-safety knowledge.

Researchers at the National Research Council's Institute of Medicine reported that the basic standards of food hygiene in the home have changed very little. Food safety information should include funda-

mental information about effective washing, refrigeration, cooling, handling and storage in ways to improve food safety (19). Data from this focus-group study illustrated an overall understanding of food safety procedures by mature adults, although uncertainty about some practices was raised. Some participants indicated that they learned a few new safe food-handling strategies through their experience in the study. Potential maladaptive behaviors, including the amount of time between food preparation and refrigeration, the lack of use of meat thermometers, cleanliness and storage protocols, and the level of risk associated with cer-

tain foods, were recognized by the participants, indicating a need for further education about the specific food-handling behaviors. The themes of cleanliness and control over food preparation outside the home were presented numerous times throughout the eight focus group events.

The focus group findings suggest that food safety advocates need to address specific belief facilitators, such as tradition, skepticism, habit, and media exposure in combating maladaptive food handling behaviors. The focus group data also indicated, although without elaborating, that further research is needed into communication avenues, methods and timelines to provide effective messages to correct maladaptive safe food-handling behavior by mature adults. The relatively small amount of relevant information into how best to communicate with an aging population notes that the stereotypes associated with communicating with mature adults need to be obliterated (44). Seniors are not uninformed about healthcare. According to Weiss, they are informed consumers who will eagerly read information concerning their health care, watch cable TV, and increasingly go online to seek information about their lifestyles, life stages, responsibilities, interests and health (44). Focus group participants suggested specific places to disseminate information about safe food-handling behaviors, including doctors' offices and at the grocery store meat counter, as well as through senior center workshops. Other methods of dissemination were discussed, but were not as popular as these.

Researchers from the Institute of Medicine concluded that the media cannot be considered an active partner in any food safety system but can be considered important players. The Institute reasoned, however, that food safety information is provided through accurate reporting and timely information transfer to the general public (19). Douglas Powell remarked in his presentation to 1998 Agriculture Risk Management Conference attendees that there is growing realization that no quick fix exists with regard to the inherent difficulties in communicating about food safety risks, as detailed in Fischhoff and Downs' 1997 article (31). He also said that there is continued apathy regarding routine food hygiene while at the same time there is ongoing concern about the safety of food. Citizens, he concluded, are ill-equipped to discriminate among information sources (31).

Application of the study data should include the further development and

delivery of research and theory-based extension educational materials about adaptive safe food-handling behaviors, as well as a heightened understanding among educators, academicians, and policy makers of the inherent complexities of the mature adult population in regard to food safety. The focus group findings also suggest that the development of a population-specific communication strategy focused on adaptive behaviors would be beneficial. It would help increase the amount of detailed safe food-handling knowledge targeted to mature adults and would increase the salience of messages, as these would be repeated and consistent. Rowan and Gordon's individual research into transformative explanations used to combat incorrect lay theories may present an effective methodology for such a communication strategy (16, 33), based on the presence of maladaptive food handling facilitators such as habit and tradition. Transformative explanations acknowledge the belief of the person to whom the communication is targeted. It then explains how the belief may make intuitive sense, but does not hold up when applied to realistic scenarios. The transformative explanation goes on to introduce the orthodox scientific view and applies it to the same realistic scenario, demonstrating its validity.

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1. Complete the Abstract Submission Form.
2. All presenters must register for the Annual Meeting and assume responsibility for their own transportation, lodging, and registration fees.
3. There is no limit on the number of abstracts registrants may submit. However, presenters must present their presentations.
4. Accepted abstracts will be published in the Program and Abstract Book. Editorial changes will be made to accepted abstracts at the discretion of the Program Committee.
5. Photocopies of the abstract form may be used.
6. Membership in the Association is not required for presenting a paper at IAFP 2006.

Presentation Format

1. Technical – Oral presentations will be scheduled with a maximum of 15 minutes, including a two to four minute discussion. LCD projectors will be available and computers will be supplied by the convenors.
2. Poster – Freestanding boards will be provided for presenting posters. Poster presentation surface area is 4' high by 8' wide. Handouts may be used, but audiovisual equipment will not be available. The presenter will be responsible for bringing pins and velcro.

Note: The Program Committee will make the final decision on presentation format.

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1. Title – The title should be short but descriptive. The first letter in each word in the title and proper nouns should be capitalized.
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Abstracts submitted for IAFP 2006 will be evaluated for acceptance by the Program Committee. Please be sure to follow the format instructions above carefully; failure to do so may result in rejection. Information in the abstract data must not have been previously published in a copyrighted journal.

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Selection Criteria

1. Abstracts must accurately and briefly describe:
 - (a) the problem studied and/or objectives;
 - (b) methodology;
 - (c) essential results, including statistical significance when applicable; and
 - (d) conclusions and/or significant implications.
2. Abstracts must report the results of original research pertinent to the subject matter. Papers should report the results of new, applied research on: safety and microbial quality of foods (dairy, meat and poultry, seafood, produce, water); foodborne viruses and parasites, retail food safety, epidemiology and public health; non-microbiology food safety issues (food toxicology; allergens; chemical contaminants); advances in sanitation, laboratory methods, quality assurance, and food safety systems. Papers may also report subject matter of an educational and/or non-technical nature.
3. Research must be based on accepted scientific practices.
4. Research should not have been previously presented nor intended for presentation at another scientific meeting. Papers should not appear in print prior to the Annual Meeting.
5. Results should be summarized. Do not use tables or graphs.

Rejection Reasons

1. Abstract was not prepared according to the "Instructions for Preparing Abstracts."
2. Abstract does not contain essential elements as described in "Selection Criteria 1a-1d."

3. Abstract reports inappropriate or unacceptable subject matter.
4. Abstract is not based on accepted scientific practices, the quality of the research or scientific approach is inadequate, data does not support conclusions, or potential for approach to be practically used to enhance food safety is not justified.
5. Work reported appears to be incomplete and/or data and statistical validity are not presented (percentages alone are not acceptable unless sample sizes are reported). Indication that data will be presented is not acceptable.
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7. Results have been presented/published previously.
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Projected Deadlines/Notification

Abstract Submission Deadline: February 8, 2006.
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Contact Information

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(11) TYPE abstract, DOUBLE-SPACED, in the space provided or on a separate sheet of paper, using a 12-point font size. Use no more than 300 words.

Call for Entrants in the Developing Scientist Awards Competitions

Supported by the International Association for Food Protection Foundation

The International Association for Food Protection is pleased to announce the continuation of its program to encourage and recognize the work of students and recent graduates in the field of food safety research. Qualified individuals may enter either the oral or poster competition.

Purpose

1. To encourage students and recent graduates to present their original research at the Annual Meeting.
2. To foster professionalism in students and recent graduates through contact with peers and professional Members of the Association.
3. To encourage participation by students and recent graduates in the Association and the Annual Meeting.

Presentation Format

Oral Competition – The Developing Scientist Oral Awards Competition is open to graduate students (enrolled or recent graduates) from M.S. or Ph.D. programs or undergraduate students at accredited universities or colleges. Presentations are limited to 15 minutes, which includes two to four minutes for discussion.

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3. The work must represent original research completed and presented by the entrant.
4. Entrants may enter only one paper in either the oral or poster competition.
5. All entrants must register for the Annual Meeting and assume responsibility for their own transportation, lodging, and registration fees.
6. Acceptance of your abstract for presentation is independent of acceptance as a competition finalist. Competition entrants who are chosen as finalists will be notified of their status by the chairperson by May 29, 2006.
7. Entrants who are full time students, with accepted abstracts will receive a complimentary, one-year Student Membership with *JFP Online*.
8. In addition to adhering to the instruction in the "Call for Abstracts," competition entrants must check the box to indicate if the paper is to be presented by a student in this competition. A signature and date is required from the major professor or department head.
9. You must also specify full-time student or part-time student.

Judging Criteria

A panel of judges will evaluate abstracts and presentations. Selection of up to ten finalists for each competition will be based on evaluations of the abstracts and the scientific quality of the work. All entrants will be advised of the results by May 29, 2006. Only competition finalists will be judged at the Annual Meeting and will be eligible for the awards.

All other entrants with accepted abstracts will be expected to be present as part of the regular Annual Meeting. Their presentations will not be judged and they will not be eligible for the awards.

Judging criteria will be based on the following:

1. Abstract – clarity, comprehensiveness and conciseness.
2. Scientific Quality – Adequacy of experimental design (methodology, replication, controls), extent to which objectives were met, difficulty and thoroughness of research, validity of conclusions based upon data, technical merit and contribution to science.
3. Presentation – Organization (clarity of introduction, objectives, methods, results and conclusions), quality of visuals, quality and poise of presentation, answering questions, and knowledge of subject.

Finalists

Awards will be presented at the International Association for Food Protection Annual Meeting Awards Banquet to the top three presenters (first, second and third places) in both the oral and poster competitions. All finalists are expected to be present at the banquet where the awards winners will be announced and recognized.

Awards

First Place – \$500 and an engraved plaque
Second Place – \$300 and a framed certificate
Third Place – \$100 and a framed certificate

Award winners will receive a complimentary, one-year Membership including *Food Protection Trends*, *Journal of Food Protection*, and *JFP Online*.

Policy on Commercialism

for Annual Meeting Presentations

1. INTRODUCTION

No printed media, technical sessions, symposia, posters, seminars, short courses, and/or other related types of forums and discussions offered under the auspices of the International Association for Food Protection (hereafter referred to as Association forums) are to be used as platforms for commercial sales or presentations by authors and/or presenters (hereafter referred to as authors) without the express permission of the staff or Executive Board. The Association enforces this policy in order to restrict commercialism in technical manuscripts, graphics, oral presentations, poster presentations, panel discussions, symposia papers, and all other type submissions and presentations (hereafter referred to as submissions and presentations), so that scientific merit is not diluted by proprietary secrecy.

Excessive use of brand names, product names or logos, failure to substantiate performance claims, and failure to objectively discuss alternative methods, processes, and equipment are indicators of sales pitches. Restricting commercialism benefits both the authors and recipients of submissions and presentations.

This policy has been written to serve as the basis for identifying commercialism in submissions and presentations prepared for the Association forums.

2. TECHNICAL CONTENT OF SUBMISSIONS AND PRESENTATIONS

2.1 Original Work

The presentation of new technical information is to be encouraged. In addition to the commercialism evaluation, all submissions and presentations will be individually evaluated by the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff on the basis of originality before inclusion in the program.

2.2 Substantiating Data

Submissions and presentations should present technical conclusions derived from technical data. If products or services are described, all reported capabilities, features or benefits, and performance parameters must be substantiated by data or by an acceptable explanation as to why the data are unavailable (e.g., incomplete, not collected, etc.) and, if it will become available, when. The explanation for unavailable data will be considered by the Program Committee chairperson and/or technical reviewers selected by the Program

Committee chairperson to ascertain if the presentation is acceptable without the data. Serious consideration should be given to withholding submissions and presentations until the data are available, as only those conclusions that might be reasonably drawn from the data may be presented. Claims of benefit and/or technical conclusions not supported by the presented data are prohibited.

2.3 Trade Names

Excessive use of brand names, product names, trade names, and/or trademarks is forbidden. A general guideline is to use proprietary names once and thereafter to use generic descriptors or neutral designations. Where this would make the submission or presentation significantly more difficult to understand, the Program Committee chairperson, technical reviewers selected by the Program Committee chairperson, session convenor, and/or staff, will judge whether the use of trade names, etc., is necessary and acceptable.

2.4 "Industry Practice" Statements

It may be useful to report the extent of application of technologies, products, or services; however, such statements should review the extent of application of all generically similar technologies, products, or services in the field. Specific commercial installations may be cited to the extent that their data are discussed in the submission or presentation.

2.5 Ranking

Although general comparisons of products and services are prohibited, specific generic comparisons that are substantiated by the reported data are allowed.

2.6 Proprietary Information (See also 2.2.)

Some information about products or services may not be publishable because it is proprietary to the author's agency or company or to the user. However, the scientific principles and validation of performance parameters must be described for such products or services. Conclusions and/or comparisons may be made only on the basis of reported data.

2.7 Capabilities

Discussion of corporate capabilities or experiences are prohibited unless they pertain to the specific presented data.

Call for Nominations 2006 Secretary

A representative from industry will be elected in March of 2006 to serve as IAFP Secretary for the year 2006–2007.

Send letters of nomination along with a biographical sketch to the Nominations Chairperson:

Margaret D. Hardin
Smithfield Packing Company
501 N. Church St.
Smithfield, VA 23430
Phone: 757.365.3546
Fax: 757.365.3541

E-mail: margarethardin@smithfield.com

The Secretary-Elect is determined by a majority of votes cast through a vote taken in March of 2006. Official Secretary duties begin at the conclusion of IAFP 2006. The elected Secretary serves as a Member of the Executive Board for a total of five years, succeeding to President, then serving as Past President.

For information regarding requirements of the position, contact David Tharp, Executive Director, at 800.369.6337 or 515.276.3344; Fax: 515.276.8655; E-mail: dtharp@foodprotection.org.



International Association for
Food Protection®



IAFP 2006
93rd Annual Meeting
August 13-16

Calgary
Alberta Canada



International Association for
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Award Nominations

The International Association for Food Protection welcomes your nominations for our Association Awards. Nominate your colleagues for one of the Awards listed below. You do not have to be an IAFP Member to nominate a deserving professional. To request nomination criteria, contact:

International Association for Food Protection

6200 Aurora Ave., Suite 200W

Des Moines, Iowa 50322-2864

Phone: 800.369.6337; 515.276.3344

Fax: 515.276.8655

Web site: www.foodprotection.org

E-mail: info@foodprotection.org

Nominations deadline is March 13, 2006. You may make multiple nominations. All nominations must be received at the IAFP office by **March 13, 2006.**

- ◆ Persons nominated for individual awards must be current IAFP Members. Black Pearl Award nominees must be companies employing current IAFP Members. NFPA Food Safety Award nominees do not have to be IAFP Members.
- ◆ Previous award winners are not eligible for the same award.
- ◆ Executive Board Members and Awards Committee Members are not eligible for nomination.
- ◆ Presentation of awards will be during the Awards Banquet at IAFP 2006 – the Association's 93rd Annual Meeting in Calgary, Alberta, Canada on August 16, 2006.



Nominations will be accepted for the following Awards:

Black Pearl Award — Award Showcasing the Black Pearl

Presented in recognition of a company's outstanding commitment to, and achievement in, corporate excellence in food safety and quality.

Sponsored by Wilbur Feagan and F&H Food Equipment Company

Fellow Award — Distinguished Plaque

Presented to Member(s) who have contributed to IAFP and its Affiliates with distinction over an extended period of time.

Honorary Life Membership Award — Plaque and Lifetime Membership in IAFP

Presented to Member(s) for their dedication to the high ideals and objectives of IAFP and for their service to the Association.

Harry Haverland Citation Award — Plaque and \$1,000 Honorarium

Presented to an individual for many years of dedication and devotion to the Association ideals and its objectives.

Sponsored by Zep Manufacturing Co.

Harold Barnum Industry Award — Plaque and \$1,000 Honorarium

Presented to an individual for dedication and exceptional service to IAFP, the public, and the food industry.

Sponsored by Nasco International, Inc.

Educator Award — Plaque and \$1,000 Honorarium

Presented to an individual for dedicated and exceptional contributions to the profession of the Educator.

Sponsored by Nelson-Jameson, Inc.

Sanitarian Award — Plaque and \$1,000 Honorarium

Presented to an individual for dedicated and exceptional service to the profession of Sanitarian, serving the public and the food industry.

Sponsored by Ecolab, Inc., Food and Beverage Division

Maurice Weber Laboratorian Award — Plaque and \$1,500 Honorarium

Presented to an individual for outstanding contributions in the laboratory, recognizing a commitment to the development of innovative and practical analytical approaches in support of food safety.

Sponsored by Weber Scientific

International Leadership Award — Plaque, \$1,000 Honorarium and Reimbursement to attend IAFP 2006

Presented to an individual for dedication to the high ideals and objectives of IAFP and for promotion of the mission of the Association in countries outside of the United States and Canada.

Sponsored by Unilever – Safety and Environmental Assurance Centre

Food Safety Innovation Award — Plaque and \$2,500 Honorarium

Presented to a Member or organization for creating a new idea, practice or product that has had a positive impact on food safety, thus, improving public health and the quality of life.

Sponsored by 3M Microbiology

FPA Food Safety Award — Plaque and \$3,000 Honorarium

This Award alternates between individuals and groups or organizations. In 2006, the award will be presented to a group or organization in recognition of a long history of outstanding contributions to food safety research and education.

Sponsored by Food Products Association



NEW MEMBERS

AUSTRALIA

Soo C. Chuah
Kraft Foods Ltd.
Port Melbourne, Victoria

Anand K. Deo
Australian Quarantine & Inspection
Service, Canberra

Leonardo B. Pinheiro
Macquarie University
Sydney, New South Wales

Tom Ross
Australian Food Safety Centre
of Excellence
Hobart, Tasmania

CANADA

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Agriculture and Agri-Food Canada
Kentville, Nova Scotia

Anli Gao
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Guelph, Ontario

Tineke H. Jones
Agriculture and Agri-Food Canada
Lacombe, Alberta

Raquel F. Lenati
University of Ottawa
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Food & Rural Affairs
Guelph, Ontario

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Canadian Food Inspection Agency
Nepean, Ontario

Patricia J. Pentney
Canadian Food Inspection Agency
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Cardinal Pierrette
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Jose C. Riva
Canadian Food Inspection Agency
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Saarioinen Oy
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bioMérieux
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Palmerston North

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Seoul

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Chuncheon, Kangwon-do

Jin-Wook Jang
Seoul National University
Seoul

Yong Jin
Seoul National University
Seoul

Yun-Ji Kim
Korea Food Research Institute
Seongnan-si, Kyunggi-do

Mun Han Lee
Seoul National University
Seoul

Se-Wook Oh
Korea Food Research Institute
Sungnam-si, Kyunggi-do

YoungSig Park
Korea University
Seoul

Dong-Hwa Shin
Chonbuk National University
Jeonju, Jeonbuk-Do

Junghwa Song
Haetae Confectionery
Seoul

SWITZERLAND

Michiel van Schothorst
La Tour De Peilz



NEW MEMBERS

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Chulalongkorn University
Bangkok

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Alaska Food Diagnostics
Salisbury

Stefano Perni
Loughborough University
Loughborough

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Alabama A&M University
Huntsville

Aretha S. Clisby
Alabama A&M University
Huntsville

Tyrico English
Alabama A&M University
Huntsville

Vamsi K. Vasireddy
Alabama A&M University
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Safe Food Corporation
Rogers

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Sword Diagnostics
Skokie

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Illinois Institute of Technology
Summit-Argo

Jonathan L. Wacks
Sword Diagnostics
Skokie

INDIANA

Julie Puterbaugh
Indiana State Dept. of Health
Indianapolis

Richard J. Wise
IEHA
Indianapolis



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Cargill
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Maggie Chipman
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AOAC International
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Hazelwood

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Nuno Reis
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Chester

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BOC Gases
Murray Hill

Min Jeong Rho
Rutgers University
Piscataway

NEW YORK

John J. Churey
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Geneva



NEW MEMBERS

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Rochester

Paul A. Marra

Wegmans Food Markets, Inc.
Rochester

Lou A. Tassi

Wegmans Food Markets, Inc.
Rochester

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Pamela R. Jenkins

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Chitra Vijayakumar

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Biotrace International
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Lake Forest Park

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Madison

Nan G. Faith

University of Wisconsin-Madison
Madison

Craig M. Howell

Lactalis USA
Belmont

John P. Norback

University of Wisconsin-Madison
Madison

Marlo Vasquez

Covance, Inc.
Madison

UPDATES

Mettler-Toledo Hi-Speed, Inc. Announces the Appointment of Robert Newman as Business Manager, Service and Customer Support

Robert Newman is responsible for providing leadership to assure customers get the services and support they need to generate maximum long-term return on their capital. He will oversee and direct all aspects of field service, telephone technical support, depot repairs, spare parts and training.

Mr. Newman brings more than fifteen years of engineering and customer support experience to his position at Mettler-Toledo Hi-Speed. Most recently, he was vice president of customer support and implementation with Moldflow Corporation. He holds a BS degree in aviation technology and an MBA from Baker College.

Sargento Foods Hires New Director of Research and Development and a New Food Scientist

Mr. Phil Delpierre, one of two directors in this company sector, will oversee a team in the natural cheese and value-added categories. He brings with him more than 26 years expertise in the field, having worked in a similar capacity for Kraft Foods.

Prior to joining Sargento, Mr. Delpierre most recently worked for Kraft Foods as a section manager in research and development. There, his work included the research and development of natural cheeses, cultured products, process cheese, as well as pilot plant operations. Out of college, Mr. Delpierre went to

work for General Foods, which later combined with Kraft to form the largest food company in the United States. He has worked in a variety of food categories, including desserts, cereals, natural/process/cream cheese, cultured and dressings and sauces. Mr. Delpierre, who is the inventor of two patents, is excited about taking on a more hands-on role at Sargento.

Mr. Delpierre received his bachelors' degree in food science and technology from Virginia Polytechnic Institute and State University.

Dr. Soma Gandikota was hired as senior research scientist. He will be responsible for supporting the identification, evaluation and development of current product improvements, as well as new business development opportunities.

Prior to joining Sargento, Dr. Gandikota worked for The Schwan Food Company as a product development food technologist. His responsibilities included developing experimental formulas, processing procedures and specifications for new products that meet project parameters of established pricing, marketing goals, food regulations and operation feasibility. In addition, he evaluated and recommended ingredients and processing techniques to identify product improvement and cost reduction opportunities. Before Schwan, Dr. Gandikota spent seven years as a quality assurance manager for GlaxoSmithKline (food division), a renowned food and pharmaceutical company, and continues his work as an international consultant for the United States Agency for International Development (USAID).

A native of Rajahmundry, India, Dr. Gandikota earned a bachelor's in chemistry and master's in organic chemistry, both from Andhra University in India, and completed an

intensive program in baking science and technology from American Institute of Baking, Manhattan, KS. He also earned a master's of philosophy in engineering chemistry from J.N.T. University in India before completing his Ph.D. in grain science and industry from Kansas State University.

California Restaurant Association Educational Foundation Hires New Executive Director

The California Restaurant Association Educational Foundation (CRAEF) has announced the hiring of Stella Premo as its executive director.

Ms. Premo graduated with a BA in management from St. Mary's College and most recently served as the president and CEO of the Sacramento Hispanic Chamber of Commerce and its subsidiary Sacramento Business Services Center. She oversaw all elements of the Chamber including its scholarship program.

Food Allergy & Anaphylaxis Network Names New Chairman of the Board and Four New Board of Director Members

The Food Allergy & Anaphylaxis Network (FAAN) is pleased to announce the appointment of a new chairman of the board and four new board members.

A long-time member of FAAN's board of directors, Andrew Gilman, Esq., has been appointed to serve as chairman. Gilman, President and CEO of CommCore Consulting Group, has been a communication strategist and crisis counselor for more than twenty years. Co-author of the best-selling book *Get to the Point* (Bantam 1990),

UPDATES

Gilman is also a lawyer and award-winning journalist. He frequently is called upon to help senior executives prepare for media interviews, new business presentations, board meetings, testimony before Congressional committees and regulatory agencies, and appearances on TV and radio.

"With Andy Gilman's leadership and the background and experience of our four new board members,

FAAN will continue to influence public policy and heightened public awareness for the 11 million Americans with food allergies," said Anne Munoz-Furlong, FAAN's Founder & CEO. "We look to create change within the restaurant and food service industry, the nation's school systems, and how food allergies are viewed overall by the general public."

FAAN's four new board of directors members include: Nicholas

Hether, Ph.D., former research department director of product safety and regulatory sciences for Gerber Products Company; Joe Levitt, Esq., a partner with Hogan & Hartson, L.L.P.; John Yunginger, M.D., professor emeritus of pediatrics and medicine at the Mayo Clinic College of medicine, and Frank Yiannas, Ph.D., food safety & health director, Walt Disney World Company.

Kansas State University Celebrated the XXV Anniversary of the International Workshop on Rapid Methods and Automation in Microbiology, June 2005

KSU celebrated the Silver Anniversary of the International Workshop on Rapid Methods and Automation in Microbiology in Manhattan, KS from June 16 to 24, 2005. More than 125 scientists and guests from many countries and states attended the workshop.

The nine-day workshop consisted of presentations of a wide range of lectures and hands-on laboratory sessions dealing with practical application of conventional and new commercial systems of rapid isolation, identification, enumeration, and characterization of microorganisms from medical specimens, foods, water, and the environment.

Daniel Y. C. Fung, professor of food science and the director, started this workshop in 1980 as a graduate course at KSU and has offered the course to the public since 1981. A large number of outstanding scientists and friends worked with him through the years to provide the newest and best applied microbiological technologies to the participants. More than 3,500 scientists from 60 countries and 46 states have attended this workshop.



Indian Scientist Named Winner of World Food Prize

An Indian scientist has been named the 2005 winner of the World Food Prize for his work to enhance nutrition for more than 1 million people through the expansion of aquaculture and fish farming in South and Southeast Asia and Africa.

In a ceremony at the US State Department in Washington, D.C., Dr. Modadugu V. Gupta was awarded the \$250,000 prize for his work in developing low-cost fish-farming methods that are allowing poor farmers and women to turn flooded fields, ponds and other bodies of water into "mini fish factories."

"Dr. Gupta is truly deserving of receiving the World Food Prize," said Kenneth Quinn, president of the Des Moines-based World Food Prize Foundation, which each year since 1986 has hosted an international symposium in Des Moines to honor individuals who have made significant achievements in increasing the quality, quantity and availability of food. Gupta is the sixth Indian to receive the World Food Prize, which will be formally presented to him during a ceremony Oct. 13 at the Iowa State Capitol.

Nearly Half of All New Zealanders Have Concerns about Food Safety

Nearly half of New Zealand consumers have concerns about the safety of food sold in this country, a recent survey shows. Results of a survey on the perceptions of food safety in New

Zealand suggest the current government review of domestic food regulations is timely, New Zealand Food Safety Authority executive director Andrew McKenzie says.

The quantitative study, carried out by UMR Research in May on behalf of NZFSA, showed that nearly half (46%) of the population have some concern over the way food is produced, processed and handled in New Zealand. About the same number had observed poor food safety practices in food outlets over the past two years.

The results demonstrate the relevance of the Domestic Food Review, Andrew McKenzie says. The second phase of the review, a five-year project to bring decades-old food safety regulations up to date, is to be discussed in a series of public workshops that run in the main centres over 10 days from Monday July 25. Draft guidance material is expected to be produced by November.

In the survey, just over two in 10 respondents said they had experienced food poisoning over the past two years, with most of these (83%) indicating it had been caused from food purchased outside the home. Despite this significant result, the actual number of those affected by food poisoning is suspected to be higher. Only three out of 10 respondents who had experienced food poisoning outside of the home declared that they had reported it.

Other survey findings:

- Eighty three percent of respondents expressed concern about chicken, 78% for shellfish and 76% for food displayed in warming ovens such as pies.

- In general females were more likely to express food safety concerns about particular foods.
- Places that respondents were most concerned about with regards to food safety were, buffets and smorgasbords (58% concerned) mobile food outlets (57%), Asian and ethnic restaurants (53%) and also food halls (53%).

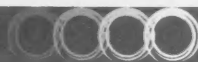
Food safety issues that respondents were most concerned about included *Salmonella* (80% concerned), *Listeria* (64%), use of pesticides to grow food (63%) and antibiotics in meat (62%).

Andrew says the results, while not bad when compared internationally (41 percent say New Zealand standards are better than other Western countries), show there is plenty of room for improvement in food safety levels. "The current hygiene regulations that apply to most food businesses are outdated and are inconsistent with developments nationally and internationally over the past 20 years."

The ultimate aim is to improve food safety for consumers and ensure that people selling food are responsible for that safety, he says. "We want a system that is practical, consistent and delivers and promotes safe and suitable food."

As part of the review, NZFSA is keen to ensure that compliance costs and interventions are kept to a minimum, trade and commerce in food and food-related products is facilitated and foodborne illness is reduced. It is important that the public have their say, Andrew says.

"What we are asking for in the Domestic Food Review is: What



do New Zealander consumers want to see put in place for our future? Bearing in mind that protecting New Zealand's reputation as a producer of safe food is vital to our economic future as well."

Another area of concern highlighted by the survey is the standard of food sold during fundraising events such as barbecues and food stalls. Almost two thirds (63%) of survey respondents said they were not against government controls on food handling practices at fundraising barbecues and food stalls. However, Andrew says that NZFSA is well aware that such events are very much a part of the Kiwi way of life and would like to see them continuing. "What we intend is to manage any risks to consumers in a proportionate way and to improve consistency in the handling of such events throughout New Zealand."

He says that if the review makes it clear the New Zealand public believes any sort of controls for fundraisers is not needed then it will be left up to the individual purchaser to decide for themselves whether the food is safe and meets 'suitability' expectations.

"The Government would not have the ability to act if it wasn't safe or did not meet any other New Zealand requirements. In any situation where food is sold, it is the person buying the food who is taking the risk, not those making the food, whether that sale of food is for charity or for profit."

The survey results, which are very similar results to a NZFSA survey done in 2003, are based on a nationally representative random telephone survey of 750 New Zealanders, 18 years of age and over. It was conducted in May 2005. The margin of error for a 50% figure at the '95% confidence level' is +/-3.6%. The survey can be found

on NZFSA's Web site at: <http://www.nzfsa.govt.nz/science-technology/research-projects/umr-research/nzfsa-quantitativestudy-may05-2.pdf>.

New Technique Rapidly Detects Illness-causing Bacteria

Cornell University scientists have developed a rapid, less costly and sensitive new technique for detecting group A streptococcus, the bacteria that cause scarlet fever. Details will be announced at the Institute of Food Technologists Annual Meeting and Food Expo in New Orleans.

The presentation by Sam Nugen, a graduate student in Cornell's food science department, will focus on detecting the foodborne bacteria *Streptococcus pyogenes*, but the technique can be applied to a wide variety of bacterial pathogens, including *Escherichia coli*.

The new biosensor works in a test tube and a positive result shows up as a red line on a strip, much like a pregnancy test. Newly designed software gives researchers a powerful tool for increasing the sensitivity of the analysis.

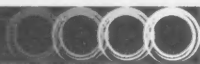
The method may help researchers and companies that are in the business of tracking foodborne pathogens, allowing technicians to determine a source quickly. It may also help to analyze a throat culture swab, to tell if someone has an illness like strep throat.

"We hope to see this technique commercialized, because it is very rapid compared to all the standard methods right now," said Nugen, the study's lead author. Nugen conducted his research in the laboratory of Antje Baeumner, Cornell associate professor of biological and environmental engineering, who is also a co-author of the

study. "It would be great if we came up with something that became a standard," Nugen added.

Current biosensors rely on a time-consuming technique called gene amplification that requires costly equipment: Technicians take a piece of DNA from a sample and add enzymes that make many copies of the DNA. Duplicating or "amplifying" the DNA makes a pathogen easier to detect. The new process starts with genetic material that is extracted from a food sample. This material, called ribosomal RNA (rRNA), is responsible for translating genetic information carried in DNA into proteins. Nugen designed the computer software that allows researchers to enter in an rRNA sequence, called a target sequence, that is unique to a specific microbe. The program then determines tiny sequences of complementary DNA — known as probes — that are exactly matched to stick to the rRNA target sites. These sequences are then reproduced as genetic material by a biotech company.

To test for the presence of scarlet fever-causing bacteria, a sample of rRNA is placed in a test tube with two of the manufactured probe DNA sequences, designed specifically to bind to the rRNA of *S. pyogenes*. One of these is called a "capture" probe, and the other is known as a "reporter" probe. The capture probe binds to the *S. pyogenes* rRNA and anchors it to a zone on a strip of membrane, while the reporter probe, which has a dye attached to it, sticks to another sequence of the *S. pyogenes* rRNA. The probes attach to the target rRNA sequence when the test tube is placed in a water bath for about 25 minutes at exactly 41 degrees Celsius (106°F). At that temperature, the complementary probe DNA sequence binds to the target RNA sequences.



In a positive result, the capture probe attached to the rRNA target molecule anchors itself to a strip on a membrane. Since the reporter probe with a red dye is also attached to the rRNA molecule, as the material collects on a zone on the membrane, it turns the strip visibly red, much like with a pregnancy test.

The entire process takes only 35 minutes, while traditional gene amplification techniques may take many hours. Promising early results suggest the sensitive method could detect fewer than 100 cells of a pathogen in just half an hour. Nugen's software also compares a target site with sequences from other organisms to make sure they don't overlap, which could lead to a misdiagnosis. "You want to be sure it doesn't detect another organism that shares similar properties," said Nugen.

The study was funded by the National Institutes of Health. Along with Baeumner, Barbara Leonard, a research support specialist in Cornell's biological and environmental engineering department, was also a co-author.

The *Listeria* That Won't Die

Meat processors already know that dangerous *Listeria monocytogenes* bacteria can withstand some major assaults. They sanitize the food processing environment and heat their products to kill the bacteria on cooked and ready-to-eat meats, but a few of the bacteria are merely injured or starved and live to cause trouble another day.

They can do quite a bit of damage even after several months in a starved state, according to new research results. Ramakrishna Nannapaneni, a food science

research associate for the University of Arkansas, has been exploring the issue for the Food Safety Consortium with a research team led by professor Mike Johnson. "There has been a tremendous effort to find out virulence differences within *Listeria monocytogenes* for risk assessment needs," Nannapaneni said, pointing to the bacterium's damaged cells. "The next logical question is how long they remain virulent. That's been the focus of our work."

The situation is relevant for food processing facilities in which *Listeria monocytogenes* cells are depleted of their nutrients but recover sufficiently to become a threat. Good cleaning practices are necessary in food processing environments, but Nannapaneni noted that inadequate chemical sanitizing can leave some bacteria alive and virulent.

The Arkansas experiments tested *Listeria monocytogenes* cells that had been starved for 196 days and those that had not been starved. The healthy cells were strong enough to kill 90 percent of a target mouse cell population within two hours of release. The starved and injured cells, after more than six months of languishing, still had enough strength to kill 60 percent of their target cell population within six hours, then 90 percent of the target after eight hours.

"Most of the phenomenon is that the starved ones take a little longer to wake up," Nannapaneni said. "Once they wake up, they have the strength to go forward."

The food processing industry has 99 percent of the cases under control, Nannapaneni said, and is aiming at the rest. "They are very serious about this organism," he continued. "They are taking powerful measures for preventing cross-contamination or eliminating it."

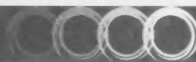
Even with a limited amount of cross-contamination, the virulence of the surviving bacteria makes them targets for elimination.

This project used mouse hybridoma cells to demonstrate the power of starved *Listeria monocytogenes*. The next step is to test the bacteria on human cell models to discover if they are equally susceptible and how quickly they can be infected. Then it's time to determine what controls are necessary to kill the starved pathogens.

It's already known, from Food Safety Consortium research conducted by Aubrey Mendonca of the Iowa State University food science faculty, that starved *Listeria monocytogenes* cells show increasing resistance to stresses such as irradiation. "It's important to understand how these starved cells are waking up and how to suppress them," Nannapaneni said. "The long-term starved cells become smaller and coccoid (spherical shaped), but they still remain viable and virulent."

Food Safety Authority Report Aims to Control Food Poisoning Caused by *Listeria monocytogenes*

The first comprehensive scientific report in Ireland on the health risks associated with *Listeria monocytogenes* was published, outlining the seriousness of *Listeria* infections and promoting a range of measures to reduce its prevalence in the Irish food chain. The Control and Management of *Listeria monocytogenes* Contamination of Food published by Food Safety Authority of Ireland (FSAI), highlights that there is a mortality rate of some 30% associated with *Listeria* food contamination and that



only small amounts need to be consumed to cause serious infection.

The report identifies specific segments of the population at particular risk including pregnant women, young children, elderly people and people with impaired immune functions, and recommends they avoid certain foodstuffs. According to the FSAI, while *L. monocytogenes* infection can be described as rare, with six to seven cases in Ireland reported per annum, its serious nature and high mortality rate are cause for concern.

The report, detailing some 58 recommendations for risk prevention was prepared by the FSAI's Microbiology Sub-committee, chaired by Prof. Martin Cormican and adopted by its scientific committee, and concludes that tighter controls need to be adopted by both the food industry and consumers to limit the spread of this harmful foodborne bacterium. The FSAI's report comes just weeks after an outbreak of *L. monocytogenes* infection in Switzerland associated with cheese consumption that resulted in the death of two elderly people, two miscarriages and a further six people hospitalized.

Foods typically associated with *L. monocytogenes* contamination include ready-to-eat products made with red-meat, poultry-meat and fish, including frankfurters, pâté, smoked salmon and fermented raw meat sausages. Commonly affected dairy products include soft cheeses, such as brie, camembert and roulade, semi-soft farmhouse cheeses and unpasteurized milk. Prepared salads, such as coleslaw, are foods, which can support the growth of the pathogen. Ready-to-eat foods have been identified as a high-risk food group as they are intended by the producer or manu-

facturer for direct human consumption, without the need for cooking or other processing methods usually associated with eliminating or reducing bacteria to levels acceptable for human consumption.

According to Prof. Albert Flynn, Chairman of the FSAI's Scientific Committee, "The majority of healthy people, who are not pregnant, can tolerate exposure to low levels of *L. monocytogenes* in their food, however symptoms for the identified risk sectors are potentially life threatening. Listeriosis in pregnancy may be associated with miscarriage, stillbirth or premature birth of an infant with life threatening infection. In addition, symptoms of listeriosis for elderly people or those with impaired immune function include high fever, shivering, severe headache, neck stiffness and nausea. It is estimated that six to seven cases per annum of *L. monocytogenes* infection are reported in Ireland, with one fatality recorded in 2000."

"The infectious dose associated with *L. monocytogenes* is uncertain; however, it is estimated that exposure to less than 1,000 cells may cause serious infection. This is very low when compared to *Salmonella*, another foodborne bacterial infection, where an individual must ingest over 100,000 cells of the bacteria to cause infection," Prof. Flynn states.

The average incubation period for the *L. monocytogenes* infection is three to four weeks but can also range from one to ten weeks. As such the bacteria can be present in the body for a period of weeks before infection becomes apparent, making it difficult to trace back to a particular food.

Dr. John O'Brien, chief executive, Food Safety Authority of Ireland, states "there is no question

that the most effective point of control in managing the spread of *L. monocytogenes* in food products is at the stage of manufacturing or during food preparation and storage in the home. The implementation of a food safety management system and the provision of food safety training for all employees are legal requirements of all food businesses. Ensuring that every food business operates from a clean and sanitized premises should be the first basic step in combating the spread of *L. monocytogenes* in food products. Regular laboratory testing of food samples and the factory environment should also form a key element of the strategy adopted by the food industry. Meanwhile consumers are encouraged to play their part by adhering closely to all manufacturer instructions on ready-to-eat food products."

According to Dr. O'Brien while the incidence of *L. monocytogenes* infection in Ireland may be rare at present, vigilance is necessary in ensure that this potentially life threatening food contaminant is kept under control.

EFSA Provides Advice on the Safety and Nutritional Contribution of Wild and Farmed Fish

The European Food Safety Authority (EFSA) has published an opinion on the health risks related to the consumption of wild and farmed fish. EFSA's opinion says that there are no consistent differences between wild and farmed fish both in terms of safety and nutritional value. Consumption of fish, and in particular fatty fish due to its richness in long chain n-3 polyunsaturated fatty acids, is beneficial to cardiovascular



health and also to fetal development. In general, dietary recommendations suggest weekly consumption of one to two portions of fatty fish. The greatest susceptibility to the critical contaminants, methylmercury and dioxin-like compounds, occurs during early human development. Scientific experts therefore advise that — in particular for vulnerable groups such as the unborn child, pregnant women and women of childbearing age — the nutritional benefits of fish should be weighed against the potential risks related to the presence of contaminants in certain types of fish. Overall, nutritional guidelines concerning fish consumption will not lead to intakes of dioxins and dioxin-like PCBs which cause safety concern, with the exception of fatty fish caught from the Baltic Sea (e.g., herring and salmon) where the available data concerning contaminant levels support the more specific recommendations established by Swedish and Finnish food safety authorities.

The Panel notes, however, that advice regarding fish consumption should also take into account other sources of these contaminants in the diet. With respect to methylmercury, women eating up to two portions of fish per week are unlikely to exceed tolerable intake levels provided that certain types of top predatory fish are avoided.

Additional guidance regarding the types and quantities of fish most suited to consumers' diets is provided by national food safety authorities in Member States. Finally, the EFSA Panel on Contaminants in the Food Chain recommends the development of a consistent and agreed methodology for carrying out quantitative assessments of risks and benefits related to food consumption.

ACMSF Publishes Second *Campylobacter* Report

The Advisory Committee on the Microbiological Safety of Food (ACMSF) has published its second report on *Campylobacter* following public consultation on the document. The ACMSF advises the agency on microbiological issues in food. *Campylobacter* is the single biggest cause of foodborne illness in the United Kingdom.

Earlier work by the ACMSF identified evidence to suggest that improper handling and preparation of chicken is a contributing factor. The Committee concluded that a reduction in food poisoning caused by *Campylobacter* would contribute towards the agency achieving one of its key strategic aims to reduce the incidence of foodborne disease by 20% by 2006.

The report reviews current information on the detection, typing and epidemiology of *Campylobacter*, and its ability to cause disease. It considers measures for preventing contamination in poultry and other meat, and methods for tackling *Campylobacter* in domestic and catering environments. An annex to the report deals with the key areas which the Committee considers require longer-term research.

New Department of Food Safety in WHO

WHO is promoting an integrated approach to food safety and in particular the strengthening of links between the different sectors involved in food safety (from farm to table) and zoonoses prevention and control. A number of Member States are now in the process of updating their food safety systems and veterinary services to reflect a similar paradigm change. As of June 1, 2005, pre- and post-harvest food safety and foodborne disease surveillance are covered by the new Department of Food Safety, Zoonoses and Foodborne Diseases (FOS). In addition to foodborne zoonotic diseases the Department will also cover zoonoses which are of public health importance but not related to food (e.g., rabies).

Visit our Web site
www.foodprotection.org

INDUSTRY PRODUCTS



Axon® Corporation

Axon Corporation Answers Food Safety Concerns

Axon® Corporation, a manufacturer of heat shrinkable sleeve label, tamper-evident band and stretch sleeve applicators, proudly introduces their heat shrinkable tamper-evident band applicators to the fresh-cut produce industry. The EZ-400 and EZ-650 apply a tamper-evident seal around clamshell and large tray type packages, creating more secure products for the produce industry.

"The increase in demand for product safety for all markets led us to look at areas to expand into," says Ed Farley, director of sales, Axon® Corporation. "The EZ-Seal line has been successful in creating safe packaging for many different markets, and the produce industry will benefit just as well."

Tamper-evident banding assures packagers and processors that their product remains uncontaminated and undamaged. Applying a tamper-evident seal to the lip of a clamshell or tray eliminates the opportunity for the package to pop open during the transportation cycle. This diminishes safety concerns and assures packag-

ers and processors that the product arrives on the shelves in pristine condition, safe and uncontaminated.

Ideal for produce packagers, Axon's EZ-400 and EZ-650 accommodate a variety of shapes and sizes and can band or partially sleeve either foil or plastic packages for added protection. The EZ-400 has a maximum sleeve lay flat width of 400 mm. It is designed to accommodate product widths from 3-1/16" to 9-7/8." The EZ-650 has a sleeve lay flat width range between 150 mm to 650 mm, and accommodates product widths from 3-1/16" to 16-3/16."

A part of Axon's EZ-Seal® line of heat shrinkable sleeve label applicators, both systems are fully automatic, continuous motion units that utilize minimal moving parts for high reliability and low maintenance. With its small footprint, the machines can easily integrate with existing lines or Axon® can provide a complete system including applicator, conveyor, and heat tunnel.

Axon® Corporation
800.598.8601
Raleigh, NC
www.axoncorp.com

Eagle Introduces New High-density Floor-Trak™ System

Eagle Foodservice Equipment announces the introduction of its new High-density Floor-Trak™ System. This versatile track-and-skate system enables foodservice operators to consolidate and optimize the storage of foodstuffs and other items.

The system is easy to install, and is designed to accommodate most popular makes and brands of wire-shelving products (post heights up to 86 inches). The low-profile, non-corrosive roller track is constructed of ultra-durable stainless steel and high-performance anodized aluminum components. Industrial-grade bearings allow loaded shelving units to glide effortlessly over the tracks for smooth sailing each time, every time. Specially engineered shock-absorbing end-stops ensure that the shelving is always securely braked at the end of the track line. In addition, the system's open construction easily accommodates for the use of cart covers, if desired.

Eagle's new Floor-Trak™ system easily accommodates the installation of add-on tracks and shelving units as storage requirements grow. The systems can also be doubled up end-to-end without impeding rollability.

New High-Density Floor-Trak™ systems from Eagle Foodservice Equipment are ADA-compliant and NSF approved.

Eagle Foodservice Equipment
800.441.8440
Clayton, DE
www.eaglegrp.com

Advanced Instruments Introduces New CombiScope Analyzer

Advanced Instruments, Inc. has introduced its new CombiScope Analyzer, a highly reliable system that performs both milk composition analysis and somatic cell counting for rapid milk testing in dairy labs.

Be sure to mention, "I read about it in *Food Protection Trends*!"

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INDUSTRY PRODUCTS

"The CombiScope solution combines a spectrophotometer using established infrared technology for elemental analysis, plus FDA-approved, fluorescence flow cytometry for fast and accurate counting of somatic cells," said Peter Costas, vice president, sales and marketing, Advanced Instruments. "The dual-purpose analyzer quantifies the amount of fat, protein, lactose, and solids content accurately and automatically in milk and milk products, as well as precisely measuring the total number of somatic cells in raw milk."

The modular system incorporates confirmed technologies that deliver the highest uptime and maximum asset utilization. "When combined with its ease of use, standard one-year warranty, free on-site training and Advanced Instruments' 24/7 technical support, the CombiScope offers dairy labs the lowest cost of ownership over the lifetime of the solution," said Costas.

In addition, the CombiScope analyzer's features include:

- Accurate measurement of somatic cell count via closed-circuit sample preparation unit
- Automated cleaning and zeroing
- Customizable interface via DataScope software
- Easy maintenance and rapid upgrading due to modular construction

The company also announced the availability of the CombiScope FTIR analyzer, a version of the CombiScope platform with Fourier Transform Infrared technology that provides ultra-precise component analysis, outstand-

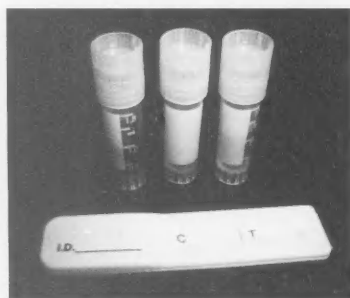
ing calibration transferability, and high throughput. "This system can process up to 400 samples per hour and is ideal for herd improvement and payment control applications where exceptional accuracy is required," Costas said.

Advanced Instruments, Inc.

800.225.4034

Norwood, MA

www.aicompanies.com



MicroPhage, Inc.

MicroPhage Demonstrates Its New Platform for Rapid Detection of *Salmonella* sp.

MicroPhage, Inc., a new diagnostics-enabling company focused on decreasing time to results for detection of bacteria announces its *Salmonella* sp. demonstration platform.

The company's technology capitalizes on unique use of bacteriophage amplification which allows for reduced incubation times to achieve high concentrations of surrogate signal, reducing the amount of time required for sample incubation.

The *Salmonella* assay has to date been demonstrated to detect 10 CFU /25 g food samples in 6 hours using a simple immunoassay detector, implying absolute detection (1 CFU/25g) in less than 10 hours. These bacterioph-

age, which drive specificity of the assay, have been shown to cover over 96% of the *Salmonella* strains tested to date. Its current cross-reactivity is "in the single digits" reported MicroPhage scientist Jon C. Rees, Ph.D.

"Eighty-three percent of surveyed food plants have cited faster time to results as the improvement most desired," said marketing manager Scott Conlin. "This plays well to MicroPhage's core strength of delivering an amplified signal to partners' detection platforms. We believe this could halve the current time to results required by molecular and immunoassay methods, without incurring additional training or end-user effort."

MicroPhage, Inc.

303.339.1410

Longmont, CO

www.microphage.com

Charm Sciences and Ecolab Launch the Next Generation in ATP Hygiene Technology

Charm Sciences and Ecolab announce the availability of novaLUM™, a palm-sized luminometer that is packed with powerful HACCP-friendly tests to aid in ATP-based hygiene monitoring programs in the dairy, food and beverage processing industries.

The novaLUM's revolutionary lightweight, ergonomic design offers unrivaled versatility with several ATP-based test applications, including validation of sanitation effectiveness and assessment of allergen control programs. The novaLUM features a complete numeric keyboard with a rocker toggle switch, as well as direct swab chamber entry design, ensuring the fastest pre-operational results.

Be sure to mention, "I read about it in *Food Protection Trends*!"

INDUSTRY PRODUCTS

The entire family of Charm ATP tests is designed for use with novaLUM, including PocketSwab® Plus, AllerGiene® and WaterGiene™. The PocketSwab Plus single service hygiene test has improved shelf stability and no longer requires refrigeration. AllerGiene is an ATP-based test with greatly enhanced sensitivity to aid in detection of potentially allergenic food residues. WaterGiene is the most sensitive ATP indicator of water quality when run on the novaLUM.

All novaLUM tests are conveniently stored, tracked and trended by the new novaLink™ software. The novaLUM stores 6,000 test results and is configured to manage multiple sampling plans and surface types with a remarkable 400 test sites per plan.

The novaLUM and the family of Charm ATP tests, are part of the Ecolab CleanCheck™ program. CleanCheck is the only ATP surface hygiene system that combines proven, state-of-the-art food safety diagnostics, with an unsurpassed sanitation service and support network from the leaders in sanitation technology.

Ecolab Inc.
651.293.2549
St. Paul, MN
www.ecolab.com
Charm Sciences
978.687.9200
Lawrence, MA
www.charm.com

Multisorb Technologies Highlights New Desiccant Solutions for Electronics, Pharmaceutical and Food Applications

Multisorb Technologies, will highlight three new solutions at PACK EXPO Las Vegas 2005, September 26-28. These technologies enable



Multisorb Technologies

manufacturers to protect packaging machinery optics, ensure product stability in pharmaceutical products, and extend shelf life of packaged foods.

Multisorb will showcase: Natra-Sorb® 900 Dry Formula, which ensures lenses and other moisture-sensitive components in packaging machinery optics are kept free of condensation caused by temperature changes during shipping and humid operating environments.

StabilOx™ oxygen absorbing packets, a combination humectant and oxygen scavenger, is ideal for drugs that require protection from oxidation, but cannot be subjected to extremely low relative humidity.

Enhanced FreshMax™ self-adhesive oxygen absorbers, which improve the freshness and quality of packaged food and prolongs product shelf life.

Multisorb Technologies
888.SORBENT
Buffalo, NY
www.multisorb.com

BioControl Announces 24-hour Quantitative Coliform /E. coli Test Adopted as AOAC Official Methods of Analysis

BioControl Systems, Inc., is pleased to announce that SimPlate® Coliform / E. coli Color Indicator (CEc-

CI) has been approved as AOAC Official Method 2005.03. SimPlate CEc-CI is a rapid method for quantifying both total coliforms and *E. coli* from food and environmental samples in only 24 hours. Developed to overcome the limitations of other counting procedures such as agar plates and film methods, SimPlate consists of proprietary formulations of pre-measured media and a patented plating device.

SimPlate utilizes patented Binary Detection™ technology which produces an easily interpreted color change. The isolation wells on the SimPlate device are used to confine these color indicator reactions, allowing technicians to simply count the number of positive wells to determine the coliform and *E. coli* levels in a sample. "While other common agar and film plating methods require duplicate plating of multiple dilutions of samples, the SimPlate's expanded counting range of up to 738 eliminate these extraneous steps and the device's unique isolation wells prevent interference from sample particulate, ensuring accuracy and saving labs both time and money," according to Geoff Bright, microbiology products manager.

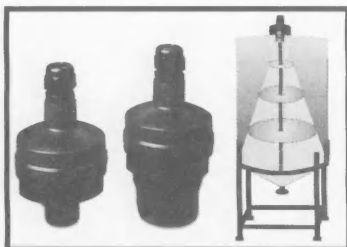
Rapid methods such as SimPlate can offer dramatic financial benefits to food processors, allowing them to release product days earlier than with conventional methods. The standard Most Probable Number (MPN) reference method for coliforms and *E. coli* involves the use of several tubes of different media, requires multiple sample transfers, and can take as long as 5 days to complete. A single SimPlate CEc-CI test will provide results for both Total Coliforms and *E. coli* from the same sample in just 24 hours.

Be sure to mention, "I read about it in *Food Protection Trends*"!

INDUSTRY PRODUCTS

SimPlate CEc-CI is the latest addition to the SimPlate product line which includes SimPlate Yeast and Mold Color Indicator (AOAC Official Method 2002.11), SimPlate Total Plate Count Color Indicator (AOAC Official Method 2002.07), and SimPlate *Campylobacter*.

BioControl
425.603.1123
Bellevue, WA
www.biocontrol.com



Walchem Corporation

Walchem Corporation Level Transmitter Allows Non-contact Measurement in Tanks

Walchem Corporation offers the WLSX level transmitter. The WLSX level transmitter allows continuous non-contact ultrasonic level measurement in liquid storage tanks up to 35 ft (10.7 m), it is ideally suited for challenging corrosive, coating, or waste liquids. The compact, corrosion-proof package is completely sealed and stands only 3 in (76 mm) above the top of the tank.

The sensors are two wire transmitters that are UL, CSA and CE approved. The WLSX can be installed and calibrated in minutes utilizing the calibration wire and a flashing LED that provides calibration feedback.

The WLSX is a perfect level sensor for the water and waste water treatment industries. The WLSX-007 will cover 55-gallon drums, tote bins, day tanks and bulk tanks up to 1,000 gallons. The WLSX-035 is ideal for bigger applications such as bulk storage.

The WLSX is another example of Walchem's commitment to technology and innovation. Walchem Corporation manufactures a broad line of metering pumps and analytical controls for the water and wastewater industry.

Walchem Corporation
508.429.1110
Holliston, MA
www.walchem.com

Chr. Hansen Has Filed a Patent for B-LC-20, a Natural, Bioprotective Culture Solution

The meat and prepared foods industry has been engaged in battle with *Listeria* for years. Now, producers of salami and other dried fermented sausages are handed a new weapon. In close cooperation with the industry, Chr. Hansen has developed a patent pending culture called B-LC-20—a natural solution that fights the food bug with lactic acid bacteria.

Otis Curtis, marketing director for Meat and Prepared Foods for Chr. Hansen in North America, states, "From our daily contacts with the meat and prepared foods industry, we realized that *Listeria* was an increasingly critical issue—a problem many producers have been seeking new solutions against. Now, we have something exciting and innovative to offer.

B-LC-20 is developed to meet the specific demands of the industry," Mr. Curtis explains. "It is adjunct culture and does not change the taste or smell of the fermented sausages. The manufacturer usually will not need to make any changes in his sausage recipe."

This makes B-LC-20 a very attractive alternative to the options currently available. These include heat treatment, additives like potato starch, and increasing fat content or salt levels.

The price of using B-LC-20 is similar to traditional meat cultures used for flavor development. Mr. Curtis says, "This is an extremely small cost for the manufacturer compared to costs incurred if forced to destroy a week's production or make a total recall from the market. Not to mention the catastrophic effects a food recall can have on a company's image and brand integrity, as well as consumer confidence."

"We expect bioprotection with B-LC-20 to be particularly popular among producers of high quality products with recognized brand names. A brand you have developed by investing significant time and money to establish consumer confidence, is a brand definitely worth protecting," Mr. Curtis said.

B-LC-20 is part of Chr. Hansen's SafePro™ range of bioprotective cultures for meat. The product has been tested by the independent Spanish Institute for Food and Agricultural Research and Technology (IRTA).

Chr. Hansen, Inc.
414.607.5700
Milwaukee, WI
www.chr-hansen.com

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OCTOBER

- **3-7, Dairy Technology Workshop**, Randolph Associates, Inc., Newport, KY. For more information, call 205.595.6455; E-mail: us@randolphconsulting.com.
- **4-7, Better Process Control School**, University of Nebraska, Lincoln, NE. For more information, call 402.472.9751; E-mail: tkoepe2@unl.edu.
- **5-6, HTST Pasteurization: Advanced** Guelph Food Technology, Guelph, Ontario, Canada. For more information, contact GFTC at 519.821.1246 or go to www.gftc.ca.
- **11-12, Better Process Control School**, University of Nebraska, Lincoln, NE. For more information, call 402.472.9751; E-mail: tkoepe2@unl.edu.
- **11-12, IAFP European Symposium on Food Safety "Recontamination Issues in the Food Industry,"** to be held in Prague, The Czech Republic. For more information, check www.foodprotection.org under "Meetings and Education."
- **11-13, FoodScan**, Laughlin, NV. For more information, call 952.974.9892; E-mail: info@fossnorthamerica.com.
- **11-13, HTST Pasteurization and Controls Seminar**, LaQuinta Inns & Suites, San Antonio, TX. For more information, call 210.628.1596; E-mail: mvk1030@aol.com.
- **11-13, North Dakota Environmental Health Association Annual Meeting**, Holiday Inn, Fargo, ND. For more information, contact Deb Larson at 701.328.1291; E-mail: djlarson@state.nd.us.
- **12-13, Association of Illinois Milk, Food and Environmental Sanitarians Annual Fall Meeting**, Stoney Creek Inn, Peoria, IL. For more information, contact Frank Brown at 217.785.2439; E-mail: fbrown@idph.stat.il.us.
- **15-19, Current Concepts in Food-borne Pathogens and Rapid and Automated Methods in Food Microbiology Symposium**, University of Wisconsin-River Falls, WI. For more information, contact Doreen Cegielski at 715.425.3704; E-mail: foodmicro@uwrf.edu.
- **17-19, HACCP: A Basic Concept for Food Protection**, University of California-Davis, Davis, CA. For more information, call 800.752.0881; E-mail: aginfo@unexmail.ucdavis.edu.
- **17-19, HACCP Verification and Validation: An Advanced Workshop**, University of California-Davis, Davis, CA. For more information, call 800.752.0881; E-mail: aginfo@unexmail.ucdavis.edu.
- **18-19, Dairy Ingredient Utilization Workshop**, University of Wisconsin-Madison, Madison, WI. For more information, contact Dr. Bill Wendorff at 608.263.2015 or go to www.cdr.wisc.edu.
- **18-20, Applied Extrusion Workshop**, University of Nebraska, Lincoln, NE. For more information, call 402.472.9751; E-mail: tkoepe2@unl.edu.
- **19, Metropolitan Association for Food Protection Fall Meeting**, Rutgers University, New Brunswick, NJ. For more information, contact Carol Schwar at 908.689.6693; E-mail: cschwar@entermail.net.
- **20-21, HACCP/ISO 9000**, Las Vegas, NV. For more information, contact Jeanette Hugé at 800.477.0778 ext. 113; E-mail: jhuge@asifood.com.
- **25, Iowa Association for Food Protection Annual Fall Meeting**, Western Starlite Motel, Ames, IA. For more information, contact Phyllis Borer at 712.754.2511 ext. 33; E-mail: borerp@ampi.com.
- **25-27, Florida Association for Food Protection Annual Fall Meeting**, World Golf Resort, St. Augustine, FL. For more information, visit www.fafp.net.
- **26-27, Certified Equipment Design Seminar**, Atlanta, GA. For more information, contact AIB at 785.537.4750; E-mail: info@aibonline.org.
- **26-29, Worldwide Food Expo '05**, McCormick Place, Chicago, IL. For more information, go to www.worldwidefood.com.
- **31-Nov. 1, Food Plant Sanitation**, GFTC, Guelph, Ontario, Canada. Contact Marlene Inglis at 519.821.1246; E-mail: minglis@gftc.ca.
- **31-Nov. 1, ICMSF Symposium on Relating Microbiological Testing and Microbiological Criteria to Public Health Goals**, Gallaudet University, Kellogg Conference Center, Washington, D.C. For more information, contact the ILSI Meetings Department at 202.659.0074 or go to www.ilsi.org under "Events".

NOVEMBER

- **1-4, Food Safety/Sanitation & HACCP Workshop**, Toronto, Ontario, Canada. For more information, call AIB at 785.537.4750 or go to www.aibonline.org.
- **1-4, ProcessScan**, Eden Prairie, MN. For more information, call 952.974.9892; E-mail: info@fossnorthamerica.com.
- **3-4, Food Risk & Security**, St. Louis, MO. For more information, contact Jeanette Hugé at 800.477.0778 ext. 113; E-mail: jhuge@asifood.com.
- **9-11, Dairy Practices Council 2005 Annual Conference**, Radisson Lackawanna Station Hotel, Scranton, PA. For more information, call 732.203.1947; E-mail: dairypc@dairypc.org.
- **10-11, 2nd Symposium on Milk Genomics & Human Health**, COPIA Center for Wine, Food and the Arts, Napa, CA. For more information, contact Jennifer Giamboni at 415.254.4549; E-mail: info@cdrf.org.
- **11-12, Mexico Association for Food Protection Annual Meeting**, Guadalajara, Jal., Mexico. For more information, contact Alejandro Castillo at 979.845.3565; E-mail: a-castillo@tamu.edu.
- **16, Ontario Food Protection Association Annual Fall Meeting**, Mississauga, Ontario. For more information, contact Gail Evans at 519.463.5674; E-mail: seed@golden.net.
- **23, Communicating Food Safety: Literacy, Language & Numeracy Issues**, Guelph Food Technology, Guelph, Ontario, Canada. For more information, contact GFTC at 519.821.1246 or go to www.gftc.ca.

COMING EVENTS

- **25, HACCP: A Management Summary**, GFTC, Guelph, Ontario, Canada. For more information, contact Marlene Inglis at 519.821.1246; E-mail: minglis@gftc.ca.

DECEMBER

- **1-2, The Essentials of Food Safety for Hotel Commercial Kitchens, Banquet Centers, Restaurants, and Lounges**, Las Vegas, NV. For more information, contact Jeanette Hugé at 800.477.0778 ext. 113; E-mail: jhuge@asifood.com.

- **13-14, Infratec 1255/1265**, Eden Prairie, MN. For more information, call 952.974.9892; E-mail: info@foss-northamerica.com.

JANUARY

- **10-11, Milk Pasteurization & Process Control School**, University of Wisconsin-Madison, Madison, WI. For more information, contact Dr. Scott Rankin at 608.263.2008 or go to www.cdr.wisc.edu.
- **25-27, 2006 International Poultry Expo**, Georgia World Congress Cen-

ter, Atlanta, GA. For more information, call 770.493.9401 or go to www.ipe06.org.

FEBRUARY

- **8-9, Quality Milk Conference**, University of Wisconsin-Madison, Madison, WI. For more information, contact Dr. Scott Rankin at 608.263.2008 or go to www.cdr.wisc.edu.
- **26-March 3, International Meeting on Radiation Processing**, Hilton Kuala Lumpur, Malaysia. For more information, go to www.imrp2006.com.

IAFP UPCOMING MEETINGS

AUGUST 13-16, 2006
Calgary, Alberta, Canada

JULY 8-11, 2007
Lake Buena Vista, Florida

AUGUST 3-6, 2008
Columbus, Ohio

CAREER SERVICES SECTION

Manager, Food Safety & Health

**Department: Walt Disney World,
Food Safety & Health**

Reporting To: Director, Safety & Health

JOB DESCRIPTION:

A management position is available with the Food Safety & Health Department at the Walt Disney World Company in Lake Buena Vista, Florida. This individual will oversee food safety efforts, as well as other public health functions, for Theme Park, Resort, and Cruiseline operations. The ideal candidate must have proven leadership experience in designing, implementing, and managing leading edge food safety and public health strategies.

REQUIRED QUALIFICATIONS:

- Proven leadership skills with a minimum of five years experience in a Food Safety & Health management role.
- In depth knowledge of HACCP, food safety performance management, food processing, emerging foodborne pathogens and state-of-the-art control strategies.
- Comprehensive knowledge of the FDA Food Code.
- Demonstrated strong analytical, organizational and communication skills.
- Ability to relate well with and influence others.
- Strong computer and information technology skills.
- Minimum of Bachelor's degree in Food Microbiology, Food Science or related field.

DESIRED QUALIFICATIONS:

- Graduate degree in Food Microbiology, Food Science, Public Health, or related field.
- Registered Microbiologist, Certified Food Safety Professional, or Registered Environmental Health Specialist.
- Multi-lingual skills.

Qualified candidates send your resumes to wdw.prof.recruiter@disney.com

Applicants should reference position #79410.

Senior Research Scientist

Soup is more than good food. It's also good business. In fact, our global consumer products company is so successful that we may even have some ingredients that will surprise you. Beyond the world's largest selling soup, Campbell brands also include Prego, V-8, Franco American, Godiva, Pepperidge Farm and more. Imagine... working for a company that knows the key to its success in the marketplace is its people. A place where achieving extraordinary results and having a stimulating work experience are part of the same process. At Campbell, we define diversity as the vast array of human differences and similarities, inclusive of everyone. In order to compete and succeed in a changing marketplace we must cultivate and embrace a diverse employee population that fuels our growth and enriches our global culture.

General Summary

This position has full responsibility for developing thermal processes for aseptic products and retorted products produced by Campbell's worldwide.

Under the direction of the Aseptic Process Authority, the incumbent will run trials, collect data, use computer modeling software and calculate aseptic processes which will render the products safe for human consumption while also ensuring they are of the highest quality and are economically manufacturable. The trials, data collection, and calculations must be of a form acceptable by the Food and Drug Administration. This position will also work with the process authority to develop new tools for data collection and new technologies in the area of thermal processing. The incumbent will be called upon to validate new processing systems in the field and to evaluate and qualify co-packers. This is a highly technical and specialized position requiring a combination of a solid scientific education and specific relevant experience. There are few people in the food industry who have the knowledge and experience to meet the requirements of this job. The incumbent will interact and work with cross-functional teams charged with new product introductions, capital project implementation and other critical projects.

Education & Experience

Required Education:

BS in Engineering, Food Science, Microbiology or related field
Education Preferred: MS or Ph.D.

Minimum Experience:

3-5 years in thermal processing of foods.

Qualifications:

- Experience in thermal processing, aseptic processing and exposure to new processing technologies;
- Understanding of food microbiology and thermal bacteriology;
- Understanding and experience in thermal process calculations and lethality determination;
- Ability to work with complex computer modeling software, programming ability a plus;
- Understanding of low acid canned food regulations, including aseptic; and
- Must be innovative, detail oriented, self directed and have good mechanical aptitude and problem solving skills.

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* Asterisk indicates author for correspondence.

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IAFP Offers "Guidelines for the Dairy Industry" from The Dairy Practices Council®

This newly expanded Four-volume set consists of 70 guidelines.

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IAFP has agreed with The Dairy Practices Council to distribute their guidelines. DPC is a non-profit organization of education, industry and regulatory personnel concerned with milk quality and sanitation throughout the United States. In addition, its membership roster lists individuals and organizations throughout the world.

For the past 34 years, DPC's primary mission has been the development and distribution of educational guidelines directed to proper and improved sanitation practices in the production, processing, and distribution of high quality milk and milk products.

The DPC Guidelines are written by professionals who comprise six permanent task forces. Prior to distribution, every guideline is submitted for approval to the state regulatory agencies in each member state. Should any official have an exception to a section of a proposed guideline, that exception is noted in the final document.

The guidelines are renowned for their common sense and useful approach to proper and improved sanitation practices. We think they will be a valuable addition to your professional reference library.

If purchased individually, the entire set would cost \$327. We are offering the set, packaged in four looseleaf binders for \$245.00.

Information on how to receive new and updated guidelines will be included with your order.

To purchase this important source of information, complete the order form below and mail or fax (515-276-8655) to IAFP.

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


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Keep Hands Clean With Good Hygiene



Proper Handwashing

Follow the six steps when washing your hands. Always wash them before you start work and after touching anything that may contaminate them.

Proper Hand Maintenance

Keep your fingernails short and clean. Cover cuts and sores with bandages and clean gloves. Remove nail polish and don't wear false nails.



Proper Use of Gloves

Wash your hands before putting on gloves and when changing to a fresh pair. Change gloves when they become soiled or torn, when you start a different task, and at least every 4 hours during continual use.

Personal Cleanliness & Proper Attire

Start by bathing or showering before coming to work. Wear clean clothes, wear a hair restraint, and remove your jewelry.



Employee Illness

Never handle food when you're sick. Tell your manager if you show signs of illness, especially if you have been diagnosed with a foodborne illness.



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