EHS-Net Food Allergen Study

EHS-NET Generic Information Collection Request
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Supporting Statement - B

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1. Respondent Universe and Sampling Methods

Respondent Universe. The respondent universe is all retail food establishments (hereafter referred to as restaurants) in the EHS-Net catchment area. Restaurant lists will be obtained from the restaurant databases maintained by the EHS-Net sites. CDC will use these restaurant lists to generate the sampling frame used to draw the sample for this study.

Sampling Methods. Each EHS-Net site will be required to enroll 50 restaurants (**Table B.1**). Since there are no previously published (population) studies that have examined staff food allergen knowledge, attitudes, and practices in restaurants, at this time, we are unable to determine whether this sample size will be able to support at least an 80% study power to detect statistical differences between study groups. Thus, data on expected prevalence of knowledge, attitudes, and practices between different groups of restaurants are not available as inputs for proper calculation of study sample size and power. But enrollment of 50 restaurants per EHS-Net site, totaling 300 restaurants for the entire study, is a reasonable sample size and follows the precedent of previous EHS-Net studies (Brown et al., under review; Brown et al., 2012; Coleman et al., under review; Green et al., 2006; Kirkland et al., 2009; Lee et al., 2004; Sumner et al., 2011). Experience from prior EHS-Net studies also indicates that a sample size of 300 should be sufficient for most of the analytic purposes outlined below, since most of the analytic parameters are not likely to be considered rare (in distribution) events. Data collected from this study will provide the necessary information for sample size and power calculation for future studies.

Table B.1

Strata (EHS-Net Sites)	Entity	Number of Entities
California	Restaurants	50
Minnesota	Restaurants	50
New York	Restaurants	50
New York City	Restaurants	50
Rhode Island	Restaurants	50
Tennessee	Restaurants	50

Sampling Strategy and Study Design. The design is cross-sectional and uses a stratified random sampling plan in which each EHS-Net site serves as its own mutually exclusive stratum. There are two primary reasons for stratifying by EHS-Net site. The first is that food safety regulations vary by jurisdiction. For example, Tennessee state food safety regulations differ from New York state food safety regulations. These regulations can and do greatly influence restaurants' food safety practices and policies. EHS-Net site/jurisdiction, therefore, poses as the largest source of variability from a study design perspective. Thus, it is a critically important factor for stratification. The second reason for stratifying by EHS-Net site only is due to practical concerns that limit our ability to stratify on other variables of interest. EHS-Net sites participate in EHS-Net through a cooperative agreement. See Table B.2 for EHS-Net sites' cooperative agreement numbers. The nature of this agreement is such that one site cannot be expected to do a disproportionate amount of work in comparison to other sites (because each site receives relatively equal funding amounts). If we did not stratify by EHS-Net site but by some

other factor such as ownership (independently owned or belonging to a corporate chain), it is likely that some sites would have to carry a greater burden than other sites in term of recruiting and collecting data in a larger number of restaurants. However, we will be collecting data on these factors of interest and will account for their heterogeneity through statistical modeling. Finally, the need for each site to share an equal burden in data collection is the reason why a fixed-sample allocation method was used for each site (50 establishments per site), instead of a proportionate-sample allocation.

Table B.2

EHS-Net Sites	CDC-NCEH Cooperative Agreement Numbers
California	EH000704
Minnesota	EH000698
New York	EH000701
New York City	EH000692
Rhode Island	EH000700
Tennessee	EH000706

Restaurants will be randomly selected, with equal probability, within their respective EHS-Net site, independent of other sites. This process will give each restaurant in a particular sampling frame the same probability of being selected for study participation. There are three reasons for employing this sampling strategy: reducing sampling error, maintaining equal representation by site, and ensuring generalizability. First, as stated previously, the total target population of restaurants from all EHS-Net sites combined constitutes a highly heterogeneous group. To control for such heterogeneity in the total sample, restaurants will be stratified by EHS-Net site so they can be grouped into more homogeneous strata and then sampled within stratum independently. This reduction in heterogeneity of the total sample will lead to reduction in sampling error, which can improve representativeness of the selected sample and provide estimates (e.g., means) that tend to have less variability than estimates produced from samples that were drawn using the un-stratified, simple random sampling method. Second, with equal allocation of samples (50 restaurants per site), each EHS-Net site will have equal representation in the parameter estimates of the combined sample. An additional benefit is that even sites with small sampling frames will have sufficient data points to support their site-specific analyses. Third, by ensuring that the sampling of restaurants is done by an entity (CDC) separate from the data collectors (EHS-Net sites) and employing a random selection method, we are able to minimize the potential for selection bias. Parameter estimates or study findings obtained from an unbiased study sample could be generalized to the entire EHS-Net target population.

Response Rate. The average response rate across EHS-Net studies that used methods similar to the proposed study is 65% (Bogard, et al., under review; Brown, et al., under review; Brown, et al., 2012; Coleman, et al., under review; Green, et al., 2006; Kirkland, et al., 2009; Sumner, et al., 2011). We expect a similar response rate for the proposed study.

2. Procedures for the Collection of Information

Sampling and Recruitment. As indicated earlier, each EHS-Net site will provide CDC with a list of all restaurants in their catchment area. This list will serve as the sampling frame for the site. CDC will use a random number generator in SAS 9.3 to produce a random sample of restaurants from this restaurant list for each site. As we expect some restaurants will refuse to participate and some will be ineligible to participate, we will select more than the needed number of restaurants--100 restaurants for each site. Once they receive their sample list from CDC, personnel in each site will contact restaurants by telephone to recruit their participation in the study. If the manager is willing to participate, the EHS-Net specialist will arrange a mutually convenient time to conduct the data collection.

In instances where an EHS-Net site is unable to recruit 50 restaurants from the first list of 100 restaurants, CDC will randomly select another group of 50 restaurants for the site to use to recruit additional respondents. Recruitment will be considered complete once data are collected in 50 restaurants. EHS-Net sites will recruit via the telephone (Attachments 4, 5, & 8) and will keep a log of each contact with the restaurants to document participation rates and reasons for refusal and/or ineligibility.

CDC will not know which restaurants on the sample lists participated in the study, and thus will not be able to link restaurant names with any study data.

Data Collection. Data will be collected in the restaurants by the EHS-Net environmental health specialists. For the manager interview portion of the study, the EHS-Net specialist will obtain verbal informed consent and then conduct a face-to-face interview with a manager who has authority over the kitchen and can speak English well enough to complete the interview in English. This interview will include questions on restaurant and manager characteristics and manager food allergen knowledge, attitudes, and practices. This will take about twenty minutes to complete (Attachment 3).

For the worker interview portion of the study, the data collector will obtain verbal informed consent from and conduct a face-to-face interview with a food worker. The interview will include questions on worker characteristics and food allergen knowledge, attitudes, and practices and will take about 12 minutes to complete (Attachment 4). Data collectors will ask the manager to help identify a food worker who can spend time being interviewed for the study. Criteria for selection will be that the worker handles food and can speak English well enough to complete the interview in English.

For the server interview portion of the study, the data collector will obtain verbal informed consent from and conduct a face-to-face interview with a server. The interview will include questions on server characteristics and food allergen knowledge, attitudes, and practices and will take about 12 minutes to complete (Attachment 5). Data collectors will ask the manager to help identify a server who can spend time being interviewed for the study. Criteria for selection will be that the server takes customer orders or delivers food to customers and can speak English well enough to complete the interview in English.

For the observation portion of the survey, the data collector will observe the kitchen and dining portion of the restaurant and note any documentation concerning food allergens and any areas or equipment in the kitchen designated specifically for preparation of allergen free food. The data collector will also note various characteristics of the restaurant. This observation will take about 20 minutes to complete (Attachment 6). Altogether, data collection will take about 60 minutes per restaurant. However, managers, workers, and servers are only engaged with the data collector for 44 minutes (20, 12, and 12 minutes, respectively), because the observation does not actively involve them.

Quality Control Procedures. The data collectors are experienced and knowledgeable in environmental health and food safety and will have received training from CDC on data collection for this study. The EHS-Net administrator in each EHS-Net site and CDC staff will perform quality assurance procedures to check for data entry errors.

Potential Biases. Managers' concerns about the food allergen and safety practices of their restaurants may result in selection bias- a lower rate of study participation among restaurants with worse food allergen/safety practices compared to restaurants with better food allergen/safety practices. We have conducted studies using methods similar to those used in this study in the past, and these studies have found a wide range of food safety practices, including poor ones (Bogard, et al., under review; Brown, et al., under review; Brown, et al., 2012; Coleman, et al., under review; Green et al., 2006; Kirkland et al., 2009; Lee et al., 2004; Sumner et al., 2011). While the potential for selection bias exists, these studies indicate that these biases may be minimal. Plus, the study protocol incorporates procedures to minimize the potential for and to detect any indication of selection bias. For example, EHS-Net staff will be trained in the recruitment process in order to keep non-response rate as low as possible, which will help minimize selection bias.

The interview data collected for this study may be influenced by social desirability bias- the tendency for people to report greater levels of socially desirable behavior (such as safe food preparation practices) than they actually engage in, or to report their best behavior rather than their typical or worst behavior. Although it is difficult to eliminate this bias altogether, it can be limited by ensuring respondents that the information they report will be anonymous, which we will do (Leary, 2004).

The fact that managers will help select the worker and server to be interviewed may also introduce bias, as management may select workers that they believe are knowledgeable about food allergens/safety. However, we feel this selection technique is necessary to increase management, worker, and server participation.

We will only interview managers, workers, and servers that speak English well enough to be interviewed in English. The use of this criterion may introduce bias, as non-English speakers may have different food allergen/safety knowledge, attitudes and practices than English speakers, but the resources are not available to include non-English speaking staff in the study. Currently, one of our EHS-Net sites is conducting a study in which food safety practice data will be collected from both Spanish-only speaking food service managers and workers and English-speaking food service managers and workers; the results from this study may give us a better

understanding of how data from EHS-Net studies may be impacted by the restriction of participants to English speakers.

Any presentation of data from this study will acknowledge these potential biases and include a discussion of how they impact data interpretation.

3. Methods to Maximize Response Rates and Deal with Nonresponse

We will engage in several activities designed to maximize response rates. First, all recruiters will receive training on the recruiting process. Second, multiple attempts will be made to contact potential respondents. Specifically, recruiters will make 10 attempts over 5 days to get a participation response from establishments they have not been able to contact, and 5 attempts over 5 days to get a participation response from restaurants that have not provided a response (e.g., 'call back later'). Third, recruiting scripts will emphasize two issues that have been shown to increase response rates—the anonymous nature of the data collection and the importance of the respondents' participation in the study.

4. Test of Procedures or Methods to be Undertaken

The data collection materials and methods were based on those used in other previous, successful EHS-Net studies (Bogard, et al., under review; Brown, et al., under review; Brown, et al., 2012; Coleman, et al., under review; Green et al., 2006; Kirkland et al., 2009; Lee et al., 2004; Sumner et al., 2011). All data collection materials were reviewed and evaluated by key EHS-Net specialists whom are experienced with collecting data for EHS-Net studies. They were also reviewed by CDC EHS-Net personnel with extensive experience in developing and conducting EHS-Net studies. Additionally, all data collection materials were evaluated in pilot tests with 9 retail food establishments. Given that we are experienced in collecting data from retail food establishments with these types of instruments and methods (this is will be the ninth multisite study we have conducted in retail food establishments using similar data collection instruments and methods), we are confident that the study is designed well and do not anticipate the need to make changes to the data collection instruments. If we do need to make changes as a result of the pilot, we anticipate that they will be minor. OMB will be notified of any changes to the data collection instruments through the non-substantive change request.

Data Analysis Plan. The primary purpose of this data collection is to describe restaurant managers', food workers', and servers' knowledge, attitudes, and practices concerning food allergens. We also wished to estimate the frequency of customers with food allergies and allergic reactions in the restaurant environment. To address this purpose of this data collection, we will conduct descriptive analyses (frequencies, means, etc.). Table B.4.1 and B.4.2 contain the variables included in these analyses. Table B.4.3 contains the variables used to describe the restaurants in which we collect data, and the managers, workers, and servers from which we collect data variables. Table B.4.4 is a table shell that illustrates how we might analyze and present the descriptive data collected from this study.

Table B.4.1. Interview variables measuring food allergen knowledge, attitudes, practices, and frequency included in descriptive analyses

Item Content	***MI #***	***WI #***	***SI #***
Knowledge			
Of the following foods, which do you think are *major* allergens?	8	2	2
Someone with a food allergy can safely eat small amounts of the food that they are allergic to.	9	3	3
Someone with a food allergy can die from eating the food that they are allergic to.	10	4	4
Taking a food allergen out of a meal after it has been made is one way to make it safe for a food allergic customer.	11	5	5
Which of the following are symptoms of an allergic reaction to food?	12	6	6
Which of the following should you do if a customer is having a bad food allergic reaction, like trouble breathing?	13	7	7
Attitudes			
Servers should know about food allergies. (Strongly agree–Strongly disagree)	14	8	8
Kitchen staff should know about food allergies. (Strongly agree–Strongly disagree)	15	9	9
It is up to food allergic customers, not restaurants, to make sure restaurant food doesn't contain the food they are allergic to.	16	10	10
Restaurants should try to meet food allergic customers' special requests. (Strongly agree–Strongly disagree)	17	11	11
This restaurant can easily meet food allergic customers' special requests. (Strongly agree–Strongly disagree)	18	12	12
This restaurant can deal with a food allergic reaction needing medical help. (Strongly agree–Strongly disagree)	19	13	13
Practices			
Are any of the following [allergens] used in this restaurant?	20	14	14
Does this restaurant have a website? / Does the website have any information about allergens in its food?	21, 21a	--	--
Does this restaurant have a plan for answering questions from food allergic customers?	22-22b	15	15
Does this restaurant have a plan for when it has to make food for food allergic customers?	23-23b	16	16
Does this restaurant have a plan for what to do if a customer has a food allergic reaction that needs medical help?	24-24b	17	17
Have you had training on food allergies while working at this restaurant? / Did your training cover…	25, 25a	18, 18 a	18, 18 a
How often does a *manager* talk to the customer about their order? (Never-Always)	26	--	22
How often does a manager talk to *kitchen staff* about the order? / How often do you and a manager talk about the order? (SI) (Never-Always)	27	19	19
How often does the customer's *server* talk to you about the order? (WI) / How often do you talk to kitchen staff about the order? (SI) (Never-Always)	--	20	20

How often does *kitchen staff* talk to the customer about their order? (MI, SI) / How often do *you* talk to the customer about their order? (WI) (Never-Always)	28	21	23
How often does a manager or a server double-check with the kitchen staff to be sure an allergen is not in the customer's order before it is served? (MI) / How often does a manager or server double-check with you to be sure an allergen is not in the customer's order before it is served? (WI) / How often do you or a manager double-check with the kitchen staff to be sure an allergen is not in the customer's food before it is served? (SI) (Never-Always)	29	22	21
How often does kitchen staff look at ingredient lists before making the order? (MI) / How often do you look at ingredient lists before making the order? (WI) (Never-Always)	30	23	--
How often does kitchen staff wash their hands before making the order? (MI) / How often do you wash your hands before making the order? (WI) (Never-Always)	31	24	--
If kitchen staff ever wear gloves, how often do they change their gloves before making the order? (MI) / If you ever wear gloves, how often do you change your gloves before the order? (WI) (Never-Always)	32	25	--
How often does kitchen staff use a separate surface, like a cutting board, for making the order? (MI) / How often do you use a separate surface, like a cutting board, for making the order? (WI) (Never-Always)	33	26	--
If the order has to be cooked, how often does kitchen staff use a separate cooking surface or pan for the order? (MI) / If the order has to be cooked, how often do you use a separate cooking surface or pan for cooking the order? (WI) (Never-Always)	34	27	--
Is there typically a specific person on duty who is supposed to handle food allergy questions and requests? / Who?	35, 35a	--	24, 24 a
How is kitchen staff typically told that there is an order for a food allergic customer?	36	28	25
Does this restaurant have lists or recipes with the ingredients for the food it makes?	37	29	26
Does this restaurant have a special set of utensils and equipment for making allergen-free food?	38	--	--
Does this restaurant have a special area in the kitchen for making allergen-free food?	39	--	--
Does this restaurant have a special fryer for cooking allergen-free food?	40	--	--
Does this restaurant have a special pick-up area for food for food allergic customers?	41	--	--
Frequency			
About how many meals in the past month has this restaurant served to food allergic customers? (MI) / About how many meals do you make or help make for food allergic customers in a month? (WI) / About how many meals do you serve to food allergic customers in a month? (SI)	42	30	29
In the past year, have any customers had an allergic reaction- to something	43,	--	--

made in this restaurant- that needed medical help? / How many?	43a		

MI=Manager Interview, WI=Worker Interview, SI=Server Interview

Table B.4.2. Observation variables measuring food allergen practices included in descriptive analyses

Item Content	***Obs. #***
Practices	
Does the menu mention anything about allergens? / What does it say? / In what language(s) is it?	1-1b
Is there any documentation in the front of the house/dining area about allergens? / Where is this documentation? / What does it say? / In what language(s) is the allergen documentation?	2-2b
Is there any documentation about allergens in the kitchen area? / Where is this documentation? / What does it say? / In what language(s) is the allergen documentation?	3-3b
Did you observe any food item lists or recipes listing ingredients?	4
Did you observe any food allergen plans?	5
Did you observe a designated set of utensils and equipment for preparing allergen-free food items?	6
Did you observe a designated area in the kitchen for preparing allergen-free food items?	7
Did you observe a designated fryer for cooking allergen-free food items?	8
Did you observe a designated pick-up area for food for customers with food allergies?	9

Obs=Observation

We will also need to describe the restaurants in which we collect data, and the managers, workers, and servers from which we collect data. Table B.4.3 contains the variables needed for these analyses.

Table B.4.3. Interview variables measuring characteristics included in descriptive analyses

Item Content	***MI #***	***WI #***	***SI#***	***Obs #***
Restaurant characteristics				
Is this an independent restaurant or a chain restaurant?	1	--	--	--
About how many meals are served in this restaurant in a typical day? / How many days a week are you open? (MI) About how many meals do you serve in a typical day? / About many days do you work in a typical week? (SI)	2, 3	--	27, 28	--
How many managers, or Persons-in-Charge, including you, work in this restaurant?	4	--	--	--
How many workers, *not* including managers, work in this restaurant?	5	--	--	--
Which one of the following options best describes the menu here?	6	--	--	--
What languages do your workers speak most often while here at	7	--	--	--

work?				
Which of the following best describes this restaurant? (full service casual dining, full service casual dining, etc.)	--	--	--	10
What is the establishment type? (prep serve, cook serve, complex serve)	--	--	--	11
Please check all of the following that describe this restaurant. (sit-down restaurant, buffet, etc.)	--	--	--	12
What is the price of the highest priced food item on the menu?	--	--	--	13
How many critical violations did this restaurant receive on its last routine inspection?	--	--	--	15
Manager, worker, server characteristics				
What are your main job duties here?	--	1	1	--
About how long have you been a manager in this restaurant? (MI) /About how long have you worked in this restaurant? (WI, SI)	44	31	30	--
Have you ever been food safety certified? / Who provided the certification?	45, 45a	--	--	--
What is your highest level of education?	46	32	31	--
What language do you feel most comfortable speaking?	47	33	32	--
Interviewee's gender.	48	34	33	--

MI=Manager Interview, WI=Worker Interview, SI=Server Interview, Obs=Observation

Table B.4.4- Table Shell: Descriptive data on manager knowledge of food allergens

	n	%
Manager knows major allergens (MI8)		
Yes	xx	xx
No	xx	xx
Manager knows it is not safe for people with food allergens to eat any amount of the allergen (MI9)		
Yes	xx	xx
No	xx	xx
Manager knows that even minimal cross-contact can lead to a reaction (M11)		
Yes	xx	xx
No	xx	xx
Manager knows that someone with a food allergy can die from that allergy (MI10)		
Yes	xx	xx
No	xx	xx
Manager knows the symptoms of an allergic reaction to food (MI12)		
Yes	xx	xx
No	xx	xx
Manager knows actions that should be taken if a customer has an allergic reaction (MI13)		
Yes	xx	xx
No	xx	xx

The secondary purpose of this study is to assess relationships among 1) restaurant and staff characteristics and 2) restaurant staff food allergen knowledge, attitudes, and practices. To address this purpose of this data collection, we will conduct tests for association and logistic regression models. Analysis will involve bivariate tests for association between each individual explanatory (independent) variable and the outcome (or dependent) variables of interest. Odds ratios will be calculated to assess the strength and direction of the bivariate relationships. For those bivariate associations found to be statistically significant at $p<.30$, the explanatory variables will be used as candidate "predictors" to examine their multivariate relationships with the outcome variables. Multivariable logistic regression will be used to model for the effects that these explanatory variables have in explaining the variations observed in the outcome variables.

Explanatory variables in these analyses include those measuring restaurant and staff characteristics. Outcome variables include those measuring staff food allergen knowledge, attitudes, and practices. But analyses will focus on *key practices*. Table B.4.5 lists the key explanatory variables and key practice outcome variables. Note that we will likely create composite explanatory and outcome variables based on the individual variables listed in the table. Table B.4.6 is a table shell that illustrates how we might analyze and present the data examining the relationships between restaurant and staff characteristics and key practices.

Table B.4.5- Key explanatory and practice outcome variables included in explanatory analyses

Explanatory variables	**Outcome variables**
Restaurant characteristics • Is this an independent restaurant or a chain restaurant? (MI1) • About how many meals are served in this restaurant in a typical day? / How many days are you open? (MI:2-3) • How many managers, or Persons-in-Charge, including you, work in this restaurant? / How many workers, *not* including managers, work in this restaurant? (MI: 4-5) • Which one of the following options best describes the menu here? (MI6) • Which of the following best describes this restaurant? (full service casual dining, full service casual dining, etc.) (Obs9) *Manager characteristics* • About how long have you been a manager in this restaurant? (MI44) • Have you ever been food safety certified? (MI45) • What is your highest level of education? (MI46)	• Communication among staff and food allergic customers (MI: 26-29, 35-36; WI: 19-22, SI: 19-25) • Food worker prep and cooking (MI: 30-34, WI: 23-27) • Food item/recipes listing ingredients (MI37, WI29, SI26, Obs4) • Designated equipment/area/fryers (MI: 38-41, Obs: 6-9) • Restaurant has allergen plans/Staff knows about them (MI:22-24b; WI:15-17, SI:15-17) • Allergen documentation (MI: 21, 21a; Obs: 1-3)

MI=Manager Interview, WI=Worker Interview, SI=Server Interview, Obs=Observation

Table B.4.6- Table Shell: Key restaurant and manager characteristic explanatory variables associated with the practice outcome variable of whether the restaurant has food allergen plans, bivariate analyses

Explanatory variables	Restaurant has food allergen plans (MI: 22-24b)	
	OR (95% CI)	P
Restaurant characteristics		
Ownership (MI1)		
Independent	x.xx (ref)	.xxx
Chain	x.xx	
Meals served (MI2-3)		
≥ xxx	x.xx (ref)	.xxx
> xxx	x.xx	
Staff size (MI4-5)		
≥ xx	x.xx (ref)	.xxx
> xx	x.xx	
Menu (MI6)		
American	x.xx (ref)	.xxx
Non-American	x.xx	
Type (Obs9)		
Quick service	x.xx (ref)	.xxx
Casual dining	x.xx	
Fine dining	x.xx	
Manager characteristics		
Manager experience (MI44)		
≥ xx years	x.xx (ref)	.xxx
> xx years	x.xx	
Manager certified (MI45)		
Yes	x.xx (ref)	.xxx
No	x.xx	
Manager education (MI46)		
> High school	x.xx (ref)	.xxx
≤ High school	x.xx	

OR=Odds Ratio, P=probability level, MI=Manager Interview; Obs= Observation

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

The following people were primarily responsible for the design, including the statistical aspects, of the data collection and will be primarily responsible for data analysis. Laura Brown is the primary contact for statistical aspects and data collection.

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Personnel in the 6 EHS-Net sites will be responsible for data collection (See table below). In some cases, environmental health specialists from non-EHS-Net sites assist with data collection; these personnel are not included in this table.

Site	Number of Personnel
California Department of Health	1 full-time
Minnesota Department of Health	1 full-time 1 part-time
New York Department of Health	1 full-time 1 part-time
New York City Department of Health and Mental Hygiene	1 full-time
Rhode Island Department of Health	1 full-time
Tennessee Department of Health	1 full-time 1 part-time

References for Part B

Bogard, A., C. Fuller, V. Radke, C. Selman, and K.Smith. Under review. Ground beef handling and cooking practices in restaurants in eight states. *J. Food Protect*.

Brown, L., S. Khargonekar, L. Bushnell, and the EHS-Net Working Group. Under review. Restaurant chicken preparation and cooking practices. *J. Food Protect*.

Brown, L., D. Ripley, H. Blade, D. Reimann, K. Everstine, D. Nicholas, J. Egan, N. Koktavy, D. Quilliam, and the EHS-Net Working Group. 2012. Restaurant food cooling practices. *J. Food Protect*. 75:2172-2178.

Coleman, E., K. Delea, K., and K. Everstine. Under review. Restaurant leafy green handling practices. *J. Food Protect*.

Gall, M., W. Borg, and J. Gall. 1996. *Educational Research*. Longman. White Plains, NY.

Green, L., C. Selman, V. Radke, D. Ripley, J. Mack, D. Reimann, T. Stigger, M. Motsinger, and L. Bushnell. 2006. Food worker hand washing practices: An observation study. *J. Food Protect*. 69:2417-2423.

Kirkland, E., L. Green, C. Stone, D. Reimann, D. Nicholas, R. Mason, R. Frick, S. Coleman, L. Bushnell, H. Blade, V. Radke, C. Selman, and the EHS-Net Working Group. 2009. Tomato handling practices in restaurants. *J. Food Protect*. 72:1692–1698.

Leary, M. 2004. *Introduction to behavioral science research methods*. Allyn and Bacon. Boston, MA.

Lee, R., M. Beatty, A. Bogard, M. Esko, R. Anglulo, C. Selman, and the EHS-Net Working Group. 2004. Prevalence of high-risk egg-preparation practices in restaurants that prepare breakfast egg entre: An EHS-Net study. *J Food Protect*. 67:1444-1450.

Sumner, S., L. Brown, R. Frick, C. Stone, L. Carpenter, L. Bushnell, D. Nicholas, J. Mack, H. Blade, M. Tobin-D'Angelo, K. Everstine, and EHS-Net. 2011. Factors associated with food workers working while experiencing vomiting or diarrhea. *J. Food Protect*. 74:215–220.