

## A MIXED METHODS APPROACH TO EXAMINING FOOD ALLERGY ACCOMMODATION EFFORTS IN COLLEGES AND UNIVERSITIES

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### ABSTRACT

This study examined food allergy accommodation practices and policies in colleges and universities (CU) using a two-phase explanatory sequential mixed methods design. Seventy-six (22.2% response) foodservice professionals responded to a national survey; 11 of whom participated in follow-up interviews. Most (74%) questionnaire participants reported departmental level food allergy policies existed at their institutions while 34% of participants reported presence of institutional level policies. Differences in the likelihood of published policies existed according to institutional demographic characteristics (e.g. institution type, foodservice management type), however findings suggest variability in CU foodservice professionals' approaches to accommodations, regardless of policy presence.

**Keywords:** food allergies, foodservice, college dining, mixed methods

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### INTRODUCTION

Food allergies are a serious condition which can cause potentially life-threatening immunological reactions to ingesting specific foods (Branum & Lukacs, 2008). Food allergies impact about 15 million Americans (Food Allergy Research and Education [FARE], 2014). Ingestion of food allergens by affected individuals can cause symptoms involving various systems including respiratory tract, skin and mucous membranes, digestive tract, and nervous system (FARE, 2014); death by anaphylaxis is possible (Bock, Munoz-Furlong, & Sampson, 2001; Sampson, Mendelson, & Rosen, 1992). Having a food allergy can have psychosocial impacts on individuals (Bocket al., 2001; Sampson et al., 1992; Cummings, Knibb, King, & Lucas, 2010). Minimizing the risk of food allergic reactions requires avoidance of foods containing known allergens (FARE, 2014), which may be difficult – especially when food allergic individuals dine away from home. Difficulty in food avoidance when dining away from home may be compounded when a substantial proportion of an individual's dietary intake comes from foodservice operations, such as school or college and university (CU) dining. Foodservice operations' failure to safely accommodate food allergic patrons is documented (Knoblauch, 2009; Kwon & Lee, 2012).

Section 504 of the Americans with Disabilities Act of 1990 (ADA) indicates an individual with a disability cannot be denied benefits of any program or service receiving federal funding based on their disability. Reasonable accommodations must be made to meet the needs of students with disabilities to the extent that other students' (without disabilities) needs are met (U.S. Department of Education, 2009). This legislation has implications for K-12 schools and higher education institutions as both may receive federal funding and potentially serve students with food allergies, which can be

considered a disability under the ADA. Given the increased prevalence of food allergies among children and adolescents (Branum & Lukacs, 2008, 2009), the legal requirement to accommodate, and a general concern for students' overall well-being, K-12 school officials must make efforts to ensure safe environments for food allergic students. Food allergy accommodations in K-12 schools have received considerable attention (Molaison & Nettles, 2010; Sheetz et al., 2004). The recent School Health Policies and Practices Study (SHPPS) conducted by the Centers for Disease Control and Prevention (CDC) revealed 84% of states distributed model policies, policy guidance, or other materials addressing severe food or other allergies (U.S. Department of Health and Human Services, CDC, 2013).

College and university (CU) foodservice operations face unique challenges when accommodating students with food allergies. Adolescents and young adults are the most susceptible to food allergy induced anaphylaxis due to risk taking behaviors, failure to recognize symptoms of anaphylaxis, and failure to carry and/or administer self-injectable epinephrine in a timely manner (Bock et al., 2001; Sampson et al., 1992; Sampson, Munoz-Furlong, & Sicherer, 2006). A review of 32 cases of fatality due to food allergy induced anaphylaxis revealed 21 (66%) were adolescents or young adults between the ages of 13 and 21 (Bock et al., 2001). Sampson, Munoz-Furlong, and Sicherer (2006) found that in comparison to other activities, adolescents with food allergies were more concerned about school, making friends, and staying fit than about their food allergies.

Legal implications for CUs can occur when college students are not adequately accommodated. In 2009, the U.S. Department of Justice received a complaint that Lesley University had violated the ADA because reasonable accommodations were not made for students with celiac disease. (U.S. Department of Justice, 2013). This case set a legal precedent as it was the first time a higher education institution and the Department of Justice settled an alleged violation of the ADA pertaining to dietary accommodation (HSE Legal Currents, 2013). The details of the settlement have practical implications for professionals at other CUs, outlining measures that can be taken to accommodate students with celiac disease and other diet-restricting conditions such as food allergies (Celiac Community Foundation of Northern California, 2013; Gragreen, 2013; HSE Legal Currents, 2013).

Though limited research regarding food allergy accommodations practices in CUs exist, known studies have examined food allergy management from various perspectives including foodservice workers (Choi & Rajagopal, 2013), students with food allergies (Greenhawt, Singer, & Baptist, 2009), and foodservice directors (Rajagopal & Strohbehn, 2011). Rajagopal and Strohbehn (2011) examined CU foodservice directors' perceptions and attitudes toward food allergy accommodation practices and policies. Foodservice directors reported lack of published food allergy policies both at the institutional level (72 of 95 had no institutional policies) and foodservice department level (52 of 95 had no department policies)

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(Rajagopal & Strohbahn, 2011). Because the environment for CU food allergy accommodations may have changed in the five years that have passed (e.g. Lesley settlement, *Voluntary Guidelines* in the K-12 sector) since Rajagopal and Strohbahn (2011) published this work, this study examined food allergy accommodation policies and practices that are currently being used in CUs. The specific objectives are to:

1. Analyze formal (published) policies and procedures for food allergy accommodations in CU foodservice operations.
2. Evaluate food allergy accommodation practices in CU foodservice operations.
3. Determine whether variation in food allergy accommodation practices exist between different types of CU foodservice operations.

## METHODS

A two-phase explanatory sequential mixed design was employed to address the research objectives. The sequential design involved use of the quantitative phase (i.e. questionnaire) results to inform the qualitative phase (i.e. interviews) (Nastasi, Hitchcock, & Brown, 2010). Approval from the university's Institutional Review Board (IRB) was received prior to contacting potential participants.

### Phase One: Questionnaires

**Population:** Participants were recruited from the 2014 National Association of College and University Food Services (NACUFS) membership directory. One foodservice professional from each 4-year, U.S. institution listed was selected (n=359). The first person listed in the directory for each qualifying school, typically the director, was selected. However, if the director was not listed, then either a manager or dietitian/nutritionist was selected.

Due to firewalls or invalid e-mail addresses, the invitation e-mail reached 342 foodservice professionals. The invitation e-mail contained a link to the Qualtrics<sup>®</sup> questionnaire. Participants had the

opportunity to enter a drawing to win a gift card valued at \$25. Distribution and follow up followed guidelines set forth by Dillman, Smyth, and Christian (2009).

**Questionnaire:** A questionnaire was developed, pilot tested, and administered online to assess CU foodservice professionals' perceptions of food allergy management policies and practices. The pilot study occurred in two phases. First, three content experts reviewed the questionnaire and then the questionnaire was administered to a subsample (n=6) of the target study population. Each group of participants provided feedback regarding content, readability, format, and time required for completion. Revisions were made to the questionnaire after review from each group.

The final questionnaire contained items related to demographics, food allergy accommodation practices and policies, and other questions not reported in this manuscript. The first section collected information about participants, foodservice departments, and institutions represented. The second section contained items that assessed presence of various elements of food allergy accommodation policies at the institutional and departmental levels (see sample questionnaire items in Figure 1); items were adapted from previous research (Rajagopal & Strohbahn, 2011) or developed anew. Additional questions regarding training and operational practices were asked.

**Data analysis:** Questionnaire data were analyzed using SPSS 22.0. Frequencies were computed for each questionnaire item. Two sample population proportion tests were used to determine whether the presence of food allergy accommodation policies differed according to demographic characteristics (e.g. institution type, foodservice management type). Specifically, this statistical test was used to examine whether a difference existed between the proportions of public CUs with policies in comparison to the proportion of private CUs with policies. Food allergy accommodation practice scores were computed for each

Which of the following are included in either the institution or foodservice department food allergen policy (written and published in governance documents)?

	Institution	Department
Outline of qualifications and eligibility criteria	<input type="checkbox"/>	<input type="checkbox"/>
Required medical documentation of food allergy	<input type="checkbox"/>	<input type="checkbox"/>
Required documentation of disability due to life threatening food allergy	<input type="checkbox"/>	<input type="checkbox"/>
Required students to sign a release of liability waiver	<input type="checkbox"/>	<input type="checkbox"/>
Contact person for food allergy accommodation inquiries	<input type="checkbox"/>	<input type="checkbox"/>
Person responsible for ordering allergen-free products	<input type="checkbox"/>	<input type="checkbox"/>
Required development of emergency action plans	<input type="checkbox"/>	<input type="checkbox"/>
Required multiple departments' coordination of accommodation efforts	<input type="checkbox"/>	<input type="checkbox"/>
Outlined evaluation of quality of food allergy accommodation efforts	<input type="checkbox"/>	<input type="checkbox"/>
Involvement of dietitian or person with nutrition training	<input type="checkbox"/>	<input type="checkbox"/>
Training or professional development for foodservice staff related to food allergies	<input type="checkbox"/>	<input type="checkbox"/>

**Figure 1: Selected Questionnaire Items: Policy Content**

operation. This was the sum of accommodation practices reported in the departmental food allergy policy (11 questionnaire items depicted in Figure 1) and operational aspects (5 questionnaire items). Therefore, the maximum practice score was 16. Practice scores were only computed for participants who reported policies were in place at the departmental level. Then, pooled sample t-tests were used to determine whether mean practice scores differed based on the two examined demographic characteristics.

### Phase Two: Interviews

One-on-one telephone interviews were used to provide deeper explanations for food allergy accommodation policies and practices at CUs. Participants were recruited from the questionnaire respondent pool.

**Sample:** The sample consisted of participants from phase one who indicated willingness to participate in a follow-up interview. Eleven foodservice professionals representing the six NACUFS regions participated in the interviews.

**Interview guide:** An interview guide was developed based on the review of literature and phase one results; after development, the guide was reviewed by experts for clarity and comprehensiveness. Interview guides are useful to ensure consistency between interviews, and to facilitate efficient analyses (Krueger, 1998). Questions were open ended and follow up questions were asked during the interviews to help elicit more in-depth responses, clarifications, and examples (Rossman & Rallis, 2012).

**Data analysis:** All interviews were audio recorded and an experienced transcriptionist converted the audio to textual transcripts. Researchers analyzed data as interviews were conducted and transcribed enabling researchers to recognize when no new themes emerged from the data. Transcripts were sent to interview participants (n=11) who were asked whether interview transcripts were an accurate depiction of their experience. This member checking process was used to ensure trustworthiness of the data as recommended by Creswell and Clark (2007). Three researchers independently coded transcripts by hand and then agreed upon codes and themes prior to final analysis as recommended by Creswell and Clark (2007). Illustrative quotes from the interviews were used throughout the results and discussion section; participants were identified by pseudonyms.

## RESULTS AND DISCUSSION

### Profile of Respondents and Institutions

**Questionnaire:** Three hundred forty-two e-mail invitations were delivered yielding 81 responses (22.6%). Five questionnaires were unusable due to early survey attrition; incomplete questionnaires were retained for analyses if more than half of the items were completed. Therefore, 76 questionnaires (22.2%) were deemed usable for analysis. As depicted in Table 1, most participants were age 41-60 years (n=47, 61.9%) and female (n=46, 60.5%). Participants reported a wide range of educational levels ranging from a high school diploma to a PhD; however, most participants held a bachelor's degree (n=38, 50%). About half of the participants (n=35, 46%) had worked in CU foodservice 10 years or less. A majority (n=67, 88.1%) were certified in food safety through a course approved by the Conference for Food Protection (i.e. ServSafe<sup>®</sup>).

Forty-five (59.2%) participants worked in public CUs (Table 2) and the most represented geographic region was the Midwest (n=26, 34.2%). Institution size, indicated by reported enrollment numbers, ranged from under 1,000 to greater than 50,000. Because the public

**Table 1: Questionnaire Participants' Demographics (n=76)**

Category	Frequency (n)	Percent (%)
<b>Age</b>		
Less than 40 years old	22	28.9
41-50 years old	23	30.3
51-60 years old	24	31.6
Over 60 years old	7	9.2
<b>Gender</b>		
Female	46	60.5
Male	30	39.5
<b>Highest Level of Education</b>		
High school	5	6.6
Associates or culinary degree	8	10.5
Bachelor's degree	38	50.0
Master's degree	22	29.0
Doctorate	2	2.6
Non response	1	1.3
<b>Time Worked in College or University Foodservice</b>		
0-10 years	35	46.0
11-20 years	17	22.4
21-30 years	14	18.4
Over 30 years	10	13.2
<b>Time Worked in Current Operation</b>		
Less than 1 year	3	3.9
1-3 years	25	32.9
4-7 years	16	21.1
8-12 years	13	17.1
13-20 years	7	9.2
Over 20 years	12	15.8
Food Safety Course <sup>a</sup>	67	88.1
Registered Dietitian Credentials <sup>a</sup>	31	40.8

<sup>a</sup>Yes responses

institutions that were represented had larger enrollments (predominantly 20,000 and more) and private institutions that were represented had smaller enrollments (predominantly less than 20,000), institution type (i.e. public, private) was used as a proxy for institution size. Most participants (n=62, 81.6%) reported their foodservice departments were self-operated and 14 (18.4%) reported their foodservice departments were managed by contracted companies.

**Interviews:** Eleven foodservice professionals agreed to participate in the follow up interview representing each of the six NACUFS regions as follows: Southern region (n=3); Mid-Atlantic region (n=1), Pacific region (n=2); Continental region (n=1); Midwest region (n=2); and Northeast region (n=2) (see Table 3). Seven interview participants represented public institutions and four represented private institutions. The Fall 2014 enrollment for represented institutions ranged from about 2,800 to 35,500 with an average of 18,388 students. Seven interview participants were nutritionists or Registered Dietitians; three were in a management role (e.g. manager, director); and one was a marketing manager. The length of time participants had held their positions ranged from 8 months to 22 years. All participants reported direct involvement with food allergy accommodations efforts at their CUs.

### Presence of Food Allergy Policies

It appears improvements have been made in the development and implementation of food allergy accommodation policies relative to previous research findings. Of questionnaire respondents, 55 (72.4%) reported food allergy accommodation policies in place at the

**Table 2: Questionnaire Participants' Departmental and Institutional Characteristics (n=76)**

Category	Frequency (n) <sup>a</sup>	Percent (%) <sup>b</sup>
<b>Foodservice Management Type</b>		
Contract	14	18.4
Self-operated	62	81.6
<b>Type of Institution</b>		
Public	45	59.2
Private	30	39.5
<b>Geographic Region</b>		
Continental	7	9.2
Mid-Atlantic	5	6.6
Midwest	26	34.2
Northeast	7	9.2
Pacific	15	19.7
Southern	13	17.0
<b>Student Enrollment Fall 2014</b>		
Less than 1,000 students	5	6.6
1,001 to 5,000 students	16	21.1
5,001 to 10,000 students	12	15.8
10,001 to 20,000 students	12	15.8
20,001 to 30,000 students	11	14.5
30,001 to 50,000 students	18	23.7
More than 50,000 students	1	1.3
<b>Time accommodating students with food allergies</b>		
Less than one year	2	2.6
1-3 years	7	9.2
4-7 years	23	30.3
8-12 years	22	28.9
13-20 years	10	13.2
More than 20 years	8	10.5

<sup>a</sup>Some sections may not equal 76 due to non-response

<sup>b</sup>Percentages may not sum to 100% due to non-response

departmental level while 25 (32.9%) respondents reported their CUs had food allergy accommodation policies at the institutional level; note it was possible for participants to report policies at both levels, or neither level. A 2011 study found only 43% (n=41) participating CU foodservice directors reported policies at the departmental level and 24% (n=23) reported policies at the institutional level (Rajagopal & Strohbehn, 2011). At that time, about half reported no policies at either level indicating policy development was in progress.

Differences in the presence of food allergy policies at the departmental level were examined based on demographics. Differences in the presence of food allergy policies at the institutional level were not analyzed statistically due to the small number (n=25) of participants that reported institutional policies and inability to achieve statistical power.

**Private and public institutions:** Two sample population proportions were used to analyze whether public CUs had greater presence of formalized departmental food allergy accommodation policies than private CUs. Results revealed this association was significant at the  $p < .1$  level ( $z = 1.39, p = .087$ ). Thirty-six (80%) participants from public institutions and 19 (63%) from private institutions reported food allergy policies in place at the departmental level. Research supports the notion public and private organizations differ on a number of dimensions (Scott & Falcone, 1998). One study found core organizational values differed by sector (public or private) such that the top public sector values included accountability, effectiveness, incorruptibility, and reliability whereas the top private sector values included profitability, accountability, expertise, and reliability (Van Der Wal, 2008). The greater presence of food allergy policies in public

CUs appears to align with the top four organizational values of public organizations – policies represent an effective, non-prejudiced (incorruptible), and reliable approach to accommodating students with special dietary needs (Van Der Wal, 2008).

**Contract managed and self-operated foodservices:** Analysis of population proportions also revealed contract managed foodservice operations had statistically greater presence of formalized food allergy accommodation policies than self-operated foodservices ( $Z = 2.32, p = .010$ ). Foodservice departments run by contract managed companies have the advantage of learned insights from foodservice professionals across institutions to inform development of policies or provide access to policy templates that may be customized for individual operations. Harold, from a contract managed operation in a private institution, discussed the influence the contracted company had on the development of food allergy policies, and how corporate policy was amended for use at the CU department level:

“As a management company, we do everything from nursing homes where they’ve been dealin’ with allergens since the beginning of time as a dietary-type concern, all the way to [business corporations] where they don’t understand the need for it. So, we have to make our general corporate policy somewhat flexible so... we make it fit, whichever model that we’re overseeing... we spent the better part of four months taking the systems ...and applying them to our operations.”

#### Motivating Factors for Allergen Accommodations

Increased presence of formalized policies, in relation to years past, may be attributed to several factors. About half (n=6) of the interview participants reported institutional requirements for students to live on campus and purchase meal plan for a designated period of time (i.e. one or two years). Because the meal plan is required for those students, every effort is made to make

**Table 3: Interview Participants' Personal, Departmental, and Institutional Characteristics (n=11)**

Characteristic	Frequency (n) <sup>a</sup>
<b>Job Title</b>	
Registered Dietitian or Nutritionist	7
Foodservice Manager or Director	3
Marketing Manager	1
<b>Management Type of Operation</b>	
Contract	2
Self-operated	8
<b>Type of Institution</b>	
Public	7
Private	4
<b>NACUFS Geographic Region</b>	
Continental	1
Mid-Atlantic	1
Midwest	2
Northeast	2
Pacific	2
Southern	3
<b>Student Enrollment Fall 2014</b>	
1,001 to 5,000 students	3
5,001 to 10,000 students	1
10,001 to 20,000 students	1
20,001 to 30,000 students	2
30,001 to 50,000 students	4

<sup>a</sup>Some sections may not equal 11 due to non-response

accommodations instead of releasing students from the meal plan. Releasing students from meal plan requirement bears financial implications for the foodservice unit, therefore adequate justification may be needed for a release to be considered. Katy, from a public institution, stated:

“To be released from an actual...dining facility, a required plan, they have to provide medical documentation that they are physically at risk by purchasing and eating on campus. So that is quite lengthy of a process.”

In 2013, legal action was brought against Lesley University related to non-compliance with the Americans with Disabilities Act (ADA) due to insufficient accommodations for students with special dietary needs at a university requiring on campus students purchase meal plans (U.S. Department of Justice, 2013). The case set a legal precedent, marking the first time a CU and the Department of Justice settled an alleged violation of the ADA pertaining to special dietary accommodations (HSE Legal Currents, 2013). The details of the settlement had practical implications for CU foodservice professionals as it outlined ways in which compliance with ADA may be ensured (HSE Legal Currents, 2013). Participants appeared to have heightened awareness of food allergy accommodations and compliance with the ADA. An interview participant, Betty, from a private institution said:

“Because of the Lesley case, we now have forms that students have to fill out if they’re request different housing accommodations or getting off the meal plan.”

Foodservice professionals are recognizing food allergies may be considered a disability requiring accommodations under the ADA, and are therefore inciting involvement of relevant university departments in the process. Though departments such as Residence Life, Admissions, and Health Services may be involved in accommodating students with food allergies, interview participants discussed their collaborative efforts with Disabilities Services most frequently. Six foodservice professionals described how students must first register with the Disabilities Office before any accommodations are provided by the foodservice department. Dina, from a public institution, explained:

“If the students register with the disability center or the special accommodation, then we talk with them. They [disabilities center professionals] are the ones who actually gather the medical information to make the determination that we do need to make an accommodation.”

Gail, from a public institution said:

“We work very closely with Disability Services... they are involved when a student files a 504 plan based on a food allergy. We work with Disability Services to make sure that we’re doing what the ADA says we should be doing.”

This research supports the notion that the Lesley University Settlement may have heightened the awareness of potential legal action against CUs by not providing reasonable accommodations to students with special dietary needs (Grasgreen, 2013). Judy, from a private institution, illustrated this point when she said:

“I think it is very important to have administrative support from the top down, understanding how important it is from a responsible, ethical, legal point of view, and the Lesley ruling was very good for impressing that upon people all the way up.”

#### Accommodation Policies and Procedures

Researchers have suggested CU foodservice operations may accommodate students with food allergies inconsistently in comparison to other foodservice operations due to the lack of formalized policies (Rajagopal & Strohbehn, 2011). A high percentage of participants from this study reported formalized food allergy policies, however the content of the policies varied greatly. Among the 55 institutions with department level food allergy accommodation policies represented in questionnaire phase (Table 4), the most common elements included in the policies were: 1) training for staff (n=53), 2) involvement of dietitian or nutritionist (n=47), and 3) contact person for food allergy accommodation inquiries (n=45). Among the institutions represented in the questionnaire phase, the most common operational aspects available to food allergic students was menus designated with major allergens (72.6%) followed by designated allergen-safe food production area (55.6%) and designated allergen-safe food storage area (50.7%) (Table 5).

#### Medical documentation requirements

Medical documentation requirements included departmental food allergy policies was reported by 32 (58.2%) participants. Five interview participants who reported formal food allergy policies at their respective institutions said medical documentation was collected from students requesting accommodations. Varying degrees of leniency with collecting medical documentation was noted among these five participants. For example, Ivy, from a public institution, described the detailed documentation students must submit to the disabilities office when requesting accommodations:

**Table 4: Questionnaire Results: Food Allergy Accommodation Policy Content**

Category	Institution (%) <sup>a</sup>	Department (%) <sup>a</sup>
Training or professional development for foodservice staff related to food allergies	4(16.0)	53(96.4)
Involvement of dietitian or person with nutrition training	11(44.0)	47(85.5)
Contact person for food allergy accommodation inquiries	18(72.0)	45(81.8)
Outline of qualifications and eligibility criteria	11(44.0)	37(67.3)
Person responsible for ordering allergen-free products	6(24.0)	37(67.3)
Required medical documentation of food allergy	16(64.0)	32(58.2)
Required development of emergency action plans	15(60.0)	28(50.9)
Outlined evaluation of quality of food allergy accommodation efforts	5(20.0)	26(47.3)
Required multiple departments’ coordination of accommodation efforts	19(76.0)	22(40.0)
Required documentation of disability due to life-threatening food allergy	22(88.0)	21(38.2)
Required students to sign a release of liability waiver	6(24.0)	6(10.9)

<sup>a</sup>Percentages based on the number of respondents reporting policies in place at the indicated level: n=25 at institutional level, n=55 at departmental level

**Table 5: Questionnaire Results: Operational Aspects Available to Food Allergic Students**

Category	Frequency (%)
Menus designated with major allergens (n = 73)	53 (72.6)
Designated allergen-safe food production area (n=72)	40 (55.6)
Designated allergen-safe food storage area (n=71)	36 (50.7)
Designated allergy-friendly dining area (n=72)	10 (13.9)
Access to ingredient lists for all menu items offered (n=73)	63 (86.3)

“We [foodservice] do *not* take the medical documentation. I know that there’s a letter from the doctor describing what happens to the person [when allergens are ingested]. There’s the test results showing proof that the person is ... food allergic... Because sometimes they just bring a letter that says, “This person needs to not be around... catfish. And that’s not adequate. It has to be detailed.”

Gail (from a public institution) reported request for medical documentation is a standard procedure, however leniency with fulfillment of the request is allowed – especially depending on the food allergy:

“We do ask for medical documentation, but I don’t always follow up with it because if somebody tells me they have a peanut or tree nut allergy, I’m going to believe them.”

Varying procedures related to submission of medical documentation existed among institutions without food allergy policies as well. There appeared to be a continuum from no documentation requirement at all to highly specified documentation requirement. When asked whether students are required to submit medical documentation, Judy (from a private institution) said:

“No, we’re pretty lenient... We’re trying to balance taking a scientific or a legal point of view with a holistic we-want-to-take-care-of-the-student point of view.”

Contrarily, two interview participants reported accommodations are contingent upon students providing medical documentation. Katy (from a public institution) described procedures followed at her institution:

“If [students] actually have a medical condition or they claim to have a medical condition associated with food, we require an actual medical documentation from a long-term medical doctor that has been providing care for more than four months.”

Among these cases, participants from private institutions discussed greater degrees of leniency whereas participants from public institutions discussed more specific and deliberate procedures when asked about medical documentation.

**Training:** Questionnaire participants were asked whether training was provided for them, non-student employees, and student employees. The majority of questionnaire participants (n=72, 94.7%) reported employees received training related to food allergy accommodations. Cross contact prevention training was most frequently reported for foodservice professionals (n=57, 75%), non-student employees (n=65, 85.5%), and student employees (n=46,

60.5%). Training employees about food substitutions based on allergies was the least reported training topic for foodservice professionals (n=49, 64.5%), non-student employees (n=48, 63.2%), and student employees (n=20, 26.3%).

All interview participants (n=11) reported some type of food allergy training was provided to foodservice employees, regardless of whether formal food allergy policies were in place at their institutions. Participants reported food allergy training was provided to employees upon hire, and annually, or twice per year. Training content described by interview participants can be categorized in two ways 1) general food allergy knowledge, and 2) operation-specific procedures related to accommodations. Approaches for general food allergy knowledge training varied. For example, three interview participants noted foodservice employees on their campuses were ServSafe<sup>®</sup> certified, one of which reported employees had completed ServSafe Allergens<sup>™</sup> training. One participant reported a third-party allergy training service, AllerTrain<sup>™</sup>, was used to train management and administrative staff about food allergies. Three interview participants were responsible for administering training at their operations.

A study examining food allergy training among child nutrition professionals in U.S. schools found food allergy training was provided in only 41.2% (140/340) schools represented (Lee, Kwon, & Sauer, 2013). The primary barrier to providing training was time constraint. A key difference between K-12 and CU foodservice environments is type of employment. Child nutrition employees are often part time, working only during breakfast and lunch hours on days when school is in session. In the CU environment, there may be more full time staff preparing meals for operations serving meals continuously throughout the day. These employees may work year round, even when school is not in session. Therefore time constraints may not have as great impact in the CU environment. Three CU foodservice professionals reported school breaks were used as opportunities to provide food allergy training. Harold (from a private institution) said:

“And it’s done annually every summer when we have time to get everybody together to do it.”

**Protection from liability:** The least common item included in both departmental level and institutional level policies was the requirement for students to sign a release of liability waiver (n=6). None of the interview participants discussed a release of liability waiver; however, it appeared CU professionals were aware of potential liability issues associated with serving students with food allergies. Three interview participants reported efforts to provide protection from liabilities related to risk of food allergic reactions from food eaten on campus. Interview participants reported disclaimers were posted on website and re-iterated personally by foodservice staff to ensure students understand risks involved with dining on campus. Carla, from a public institution, noted:

“We do put out disclaimers that... foods do have some form of cross-contamination.”

Emma, from a private institution, said:

“Ultimately [the students] are responsible for the food they consume.”

**Institutional policies:** Among the 25 questionnaire respondents who reported institution level food allergy policies, the most common elements included were 1) required documentation of disability related to food allergy (n=22); 2) multiple departments’ coordination for accommodation (n=19); and 3) contact person for accommodation inquiries (n=19). These findings are logical because when a food

**Table 6: Questionnaire Results: Actions Students are Advised to Take in Absence of Policy (n=14)**

Category	Frequency (n)
No advice given	0
Check with dining hall/foodservice unit manager each time before eating	10
Meet with dining services dietitian at the beginning of the term to explain allergy; dietitian will develop list of acceptable items	11
Verbally inform foodservice staff of specific dietary needs at the beginning of term; no further action taken by the foodservice department	4
Sign a disclaimer document that relieves the institution from legal liability in case the student suffers a mild or severe allergic reaction	1
Other action taken (e.g. register with disabilities office)	5

allergy accommodation program requires the coordination of professionals across the CU, an institutional level policy may help define roles and responsibilities of involved personnel. Three interview participants reported working closely with their respective Disabilities Services professionals, though the extent of the interaction varied greatly. For example, at one CU in the Southern region, the extent of their involvement is routing of students to the foodservice professional in charge of accommodations:

“[Students] would go to the Disability...Center and say, ‘I have this problem,’ and then they would send them to us.”

At another CU, Disabilities Services professionals are responsible for registering students; that is, they would collect documentation and make the determination whether accommodations were warranted. Ivy, from a public institution, said:

“The Disabilities... Center... What happens is they are the ones who actually gather all the medical information to make the determination that we do need to make an accommodation.”

Interview participants reported involvement of CU Health Services departments (n=3), predominantly related to prevention of adverse reactions on campus. Involvement of the CU Admissions professionals were reported (n=3), though their involvement was predominantly to route self-identified students to the appropriate contact person. Residential Services and Student Life professionals were also reported to have involvement in accommodating students with food allergies (n=6) by helping identify students who may need special housing accommodations related to their food allergies.

#### Accommodation Practices by Demographics

Pooled sample t-tests were used to determine whether food allergy accommodation practices differed by institution type (public or private) and foodservice management type (contract managed or self-operated). Out of a maximum of 16, the mean food allergy accommodation practice score for public institutions was 8.89 (SD=2.79), and for private institutions was 9.2 (SD=2.79). There was no statistically significant difference ( $p=.365$ ) in mean practice scores for private and public institutions. The mean accommodation practice score for contract managed foodservice operations (n=12) was 8.25 (SD=2.2) and 9.2 (SD=2.9) for self-operated foodservice operations. There was no significant difference ( $p=.151$ ) in practice scores between contract-managed and self-operated foodservice operations.

#### Accommodation Efforts in the Absence of Policy

Of the 19 questionnaire participants who reported no policy at the department level, 10 (52.6%) indicated they were in the process of developing formal policies. Of the 49 participants who reported no policy at the institutional level, five (10.2%) indicated they were in the process of developing formal policies to put in place. A total of

fourteen questionnaire participants reported no policies at both the institutional and departmental levels. Table 6 illustrates ways in which students with food allergies are accommodated at CUs without published policies. Most commonly, students at these institutions meet with the dining services dietitian, and the dietitian develops list of acceptable items (n=11); and students are advised to check with foodservice staff each time before eating (n=10).

Five interview participants reported no formal food allergy policy in place at their respective institutions. Despite the absence of policy, participants reported informal procedures were in place to accommodate students. At these institutions, menus were used as an informative tool enabling students with food allergies to self-select appropriate menu items. For example, Carla (from a public institution) indicated:

“... working on going through all of the menus, and then identifying all of the allergens and trying to post those during regular service hours so that the students can identify if they can eat the food or not.”

Other institutions had more extensive accommodation efforts in place in the absence of formalized policies. For example, Betty (from a private institution) reported a food allergy friendly station was available to students at lunch and dinner:

“...it’s an allergen-free station...so students with food allergies can go to that station and it’s a chef-attended station. And they can easily put together like a protein, a starch and a vegetable at every meal, except for breakfast.”

#### CONCLUSIONS AND APPLICATIONS

The purpose of this study was to examine formal food allergy accommodation policies and to determine whether food allergy policies and practices differed by certain demographic characteristics (e.g. institution type, foodservice management type). From questionnaires, it was revealed many CUs had published policies in place at the departmental level (74%), and/or at the institutional level (34%), however variation in policy content and the approach to accommodation existed.

The majority of participating CUs with institutional policies included multiple departments’ coordination of accommodation efforts (76%). As gleaned from interviews, interdepartmental coordination efforts were most common between foodservice professionals and Disabilities Services. This may have been influenced by the 2013 litigation against Lesley University which heightened awareness for potential liability issues related to students with food allergies. Future research could explore knowledge of the Lesley settlement and its direct impact on food allergy accommodation attitudes and practices.

Considerable attention has been paid to food allergy accommodation in the K-12 school environment previously, and the *Voluntary Guidelines for Managing Food Allergies in Schools and Early Care and Education Program* were released in 2013 by the Centers for Disease Control and Prevention (CDC, 2013). The *Voluntary Guidelines* is a comprehensive guide providing procedural and policy recommendations for reducing the risk of food allergic reactions in the school environment. Though no such equivalent has been federally released targeting the CU environment, the guidelines have practical applications for CU foodservice professionals accommodating students with food allergies. However, industry and stakeholders have recognized that CU foodservice operations may benefit from development of a food allergy policy template tailored specifically to the environment and therefore have begun taking action. In 2015, FARE began implementation of the College Food Allergy Program with the objective of developing food allergy policies specific to the CU foodservice environment. After the initial research phase of the Program, “Pilot Guidelines for Managing Food Allergies in Higher Education” were released. Subsequent phases of the Program will involve evaluating effectiveness of implementing the guidelines.

Questionnaire data did not reveal any significant differences in practice scores based on the examined variables, however, the interview data showed differences in individual accommodation practices between institutions. Organizational culture may be a useful theoretical framework to investigate differences in accommodation practices and policies. Findings from this line of inquiry will be reported elsewhere.

This study examined whether differences in policies could be explained by two particular demographic variables including institution type and foodservice operation type. Future research may further explore variables associated with the presence of formalized accommodation policies such as history of adverse reactions to food eaten on campus as these experiences may impact CU professionals’ attitudes toward food allergies and accommodations.

There were limitations to this study, one of which was the low questionnaire response rate (22.2%). Even though at least one foodservice professional from each qualifying (i.e. four-year) NACUFS member school was invited to participate in the study, non-response bias may be inherent such that only those who had either implemented food allergy accommodation programs or had an interest in the topic participated. However, the data revealed participants reporting a wide range of food allergy accommodation efforts (e.g. minimal, undocumented accommodations to complex formalized policies). Given the small sample size, findings may not be generalizable to all four-year institutions. Although, the mixed methods design provided opportunity for greater depth of understanding for food allergy accommodations in CUs.

Future studies examining food allergy accommodations may use a similar, mixed methods approach. An explanatory design enables researchers to capitalize on advantages of both quantitative and qualitative approaches. For example, summative assessments of accommodation practices, hypothesis testing, and generalizable results can be achieved with quantitative methods while descriptive, explanatory production of knowledge may be achieved using qualitative methods.

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