

Factors Influencing the Food Purchases of Early Care and Education Providers

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ABSTRACT

Background With the majority of US children enrolled in some form of early care and education, the settings for early care and education represent a valuable opportunity to positively impact young children's diets and their interactions with food. Little evidence exists on how early care and education providers make food purchasing and service decisions for this population of young children.

Objective Our aim was to explore the factors that influence early care and education providers' food purchasing and service decisions.

Design A qualitative design consisting of individual, in-person, and semi-structured interviews with providers and on-site observations was used.

Participants/setting Sixteen early care and education providers—selected across a variety of characteristics that might affect food selection (eg, size of site, participation in reimbursement programs, presence of staff assigned to foodservice) using maximum variation purposive sampling—based in the Puget Sound region, Washington, were interviewed from June to September 2014.

Main outcome measure Provider perspectives on food purchasing and service decisions.

Statistical analyses performed Inductive analysis of transcribed interviews using TAMS Analyzer software (GPL version 2, 2012) to identify themes.

Results Ten main influencers emerged from the data. These were grouped into four categories based on an ecological framework: macro-level environments (ie, regulations; suppliers and vendors, including stores); physical environment and settings (ie, organizational mission, budget, and structure; the facility itself); social environments (ie, professional networks; peers; the site-specific parent and child community); and individual factors at both a provider and child-level (ie, providers' skills, behaviors, motivations, attitudes, knowledge, and values; child food preferences; and, child allergies). A model was then developed to identify potential pathways of intervention and underscore the need for a comprehensive approach to improve early care and education nutrition.

Conclusions This study suggests that a more system-based understanding and approach—one that accounts for an array of influencers and their interactions—is necessary to take advantage of opportunities and address barriers to improving early care and education-based nutrition.

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MANY OF THE DIETARY BEHAVIORS LEADING TO the development of obesity and diet-related chronic disease are established in the pre-kindergarten years.¹ For example, children's taste preferences are largely established between the ages of 3 and 5 years, and younger children are more likely than older children to try new foods.¹

Early care and education settings have become primary environments for consuming food and learning eating behaviors. Almost two-thirds of children newborn to age 5 years spend a mean of 33 h/wk and receive up to two-thirds of their daily nutrition in early care and education settings.^{2,3} Therefore, early care and education settings represent a

valuable opportunity to impact young children's diets and their interactions with food.⁴

While early care and education providers believe the provision of healthy meals to be one of their more important responsibilities, studies show large variation in the nutritional quality of foods offered to children in early care and education settings.⁵⁻⁹ Generally, sites that participate in federally reimbursed US programs that incorporate meal pattern requirements, such as Head Start and the Child and Adult Care Food Program (CACFP), serve children more nutritious meals and snacks than sites that do not participate.⁶ However, even in early care and education settings that show high adherence to CACFP requirements,

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nutritional concerns are common, including that meals and snacks often exceed saturated fat recommendations and that breakfast meals and snacks are often void of any fruit or vegetable.⁸

Few studies to date have explored the systemic factors that might influence early care and education provider food purchases, such as how providers might interpret regulations or how the system of influencers (eg, parent requests, child preferences, food budgets, food availability) converges with providers' personal values to affect food purchasing decisions. One qualitative study of 13 licensed Canadian early care and education providers, which used semi-structured interviews, found that a variety of individual, community, and societal factors interconnect to influence providers food and mealtime decisions.¹⁰ This study found that parents, children, and fellow child-care providers both positively and negatively influenced food decisions and that nutritional guidelines, budget restrictions, and food advertising were perceived as negatively impacting food decisions.¹⁰

Because the social and regulatory environments in the United States differ from those in Canada, and to expand on previous study methodology, the purpose of the current study was to explore the factors that influence US-based early care and education providers' food decisions via a combination of semi-structured interviews and on-site observations.

METHODS

Participants and Procedure

In May 2014, a purposive convenience sample of early care and education providers (centers and homes) were approached by key collaborators (eg, City of Seattle and a nonprofit organization) within the child-care community via e-mail listservs with a study invite, which described study methods (ie, semi-structured interview with on-site observations). Interested participants were instructed to apply for study consideration via a secure online survey that screened for inclusion criteria (ie, in the Puget Sound region; served at least one meal per day; enrolled children aged 2 to 6 years old) and a variety of factors that might affect foods selected and purchased by providers, including size of site (eg, single-site or multi-site; number of children); presence of children participating in child-care subsidy programs; participation in federal food reimbursement or voluntary programs (ie, CACFP; Early Achievers, which is Washington's quality rating and improvement system); and presence of staff assigned to foodservice tasks. Twenty-six providers filled out the online survey (81% center-based, 31% home care providers, 73% enrolled children participating in the child-care subsidy program, 85% enrolled in Early Achievers, 42% current and 15% former participants in CACFP, 46% had staff assigned foodservice-related tasks). We excluded two sites: one because it did not serve food and another because of an incomplete screener survey. Maximum variation sampling was used to recruit and enroll 16 of the remaining 24 providers, which, by *a priori* design, purposely drew participants to represent different sized sites, geography, participation in federal programs, and foodservice staffing arrangement.^{11,12} One staff member was interviewed per site (n=14 director/owners, n=2 foodservice) and offered a gift card (\$100) for completion of the study. Interviews lasted approximately

1 hour and were conducted by the same researcher (T.H.) to ensure consistency. Two researchers were present at interviews to help audiorecord and take still photos.

In total, 16 participants, each representing a unique early care and education site, were interviewed from June to September 2014 until the research team felt that theme saturation had been reached.¹¹

Semi-Structured Interviews and Site Visits

A semi-structured interview format was used by the research team because it was both uniform and flexible and allowed for new topics and follow-up questions to emerge.¹¹ A series of open-ended questions around common and potential areas of influence that emerged from the literature (eg, menu planning, procurement options, policy and food choice constraints, food-related programs and activities, and staff perceptions and values) were designed and then peer-reviewed by two collaborators from the child-care community for clarity and relevance.^{2,4,6,9,10} The final interview guide consisted of 30 open-ended questions; all questions were covered in each interview. Approximately two-thirds of the way through the interview, the research team asked participants for a site tour. The objective of the tour was to contextualize interview findings by viewing food preparation, storage and service facilities, and current food curriculum activities (eg, gardens, activities); this was audiorecorded and still photos were taken as field notes.

Description of Data Analysis

Interviews were professionally transcribed verbatim. An inductive approach was used to guide data analysis.¹² Using the interview guide, a preliminary codebook was created by the research team (J.J.O., C.L., T.H.) to characterize all the possible factors identified by participants as influential in their food purchasing/service decisions. Additional categories were identified as they emerged.¹¹ This process continued until agreement was reached that the codebook contained all relevant categories. Using the finalized codebook, two researchers (C.L., T.H.) independently coded two transcripts using TAMS Analyzer and reviewed coding conflicts and reconciled them by discussing the discrepancies and reaching consensus.^{11,13} One researcher (C.L.) coded the remaining transcripts in conjunction with regular discussion meetings with a team member (T.H.) trained in qualitative research. Each major category and the variations in how it was perceived are described in the Results section and presented with illustrative quotes. These categories were then used to develop a model of the underlying structure of experiences evident in the data.

Ethical Issues

The University of Washington Institutional Review Board approved the study. Participants received written and verbal information about the study before obtaining written informed consent. No personal identifiers were applied to the data.

RESULTS

Participants

Sixteen participants and sites were recruited to participate in the study. Their characteristics are summarized in the [Table](#).

Table. Characteristics of a cohort of 16 early care and education providers and sites participating in semi-structured interviews exploring factors that influence child care food purchasing and service practices, Puget Sound region, Washington

Characteristic	Data
Provider	
Sex (n)	
Male	0
Female	16
Time working at site, mean (range)	16 y (1 mo to 30 y)
Site	
Site type (n)	
Center	12
Family home	4
Single-site	9
Multi-site	7
Age ranges served by sites	
0 to 24 mo	14
2 to 5 y	15
6+ y	4
No. of children enrolled by age, mean (range)	
0 to 24 mo	21 (3 to 50)
2 to 5 y	39 (4 to 98)
6+ y	11 (1 to 30)
Enrolled children participating in child-care subsidy program (n)	
Yes	10
No	6
Site participates in Early Achievers ^a (n)	
Yes	14
No	2
Participate in Child and Adult Care Food Program ^b (n)	
Yes	7
No	7
Former	1
Do not know	1
Has one or more staff member assigned to foodservice-related tasks, such as ordering or shopping for food, preparing food, or cooking food (n)	
Yes	7
No	7

^aEarly Achievers is Washington's Quality Rating and Improvement System for early care and education sites.

^bChild and Adult Care Food Program is the federally funded and state-administered program that provides federal funds to child-care and adult-care facilities to serve nutritious meals and snacks.

All participants were female; 12 sites were early care and education centers, 10 received US Department of Health and Human Services subsidies, and 7 participated in CACFP.

Main Influencers

Ten main influencers emerged from the analysis. These were subsequently grouped into four categories based on an ecological framework¹⁴: macro-level environments (ie, regulations; suppliers and vendors, including stores); physical environment and settings (ie, organizational mission, budget, and structure; the facility itself); social environments (ie, professional networks; peers; the site-specific family community); and individual factors at both provider- and child-levels (ie, providers' skills, behaviors, motivations, attitudes, knowledge, and values; child food preferences; and child allergies).

Macro-Level Environments

Providers most often mentioned state licensing requirements and CACFP, a federal-level food subsidy program, in the context of describing the basic structure of their food choices and meal and menu planning. Most providers were able to summarize the basic criteria of the state licensing requirements and CACFP as they pertained to food. Many presented copies of the US Department of Agriculture's Creditable Food Guide during the on-site interviews as a frequent resource for menu planning.¹⁵ However, there was great variation on whether providers considered the regulations to be sufficiently in support of health and reimbursement levels. In terms of health, providers ranged from belief to uncertainty of health benefits, as illustrated by these two contrasting provider quotes: "But I think that it's important, the amount of protein the children have to get. They need that to grow . . ." and "Don't get me started. I think that they're based on a model that is not very healthy for people, honestly. There's way too much dairy. There's way too much meat. There's not enough emphasis on whole grains and fruits and vegetables. That's my opinion."

While providers were grateful for funding to support food provision, many felt the reimbursement levels were insufficient, particularly in lieu of the cost and effort required to participate. As one provider described, "There's a huge disconnect between what it actually costs and what we get reimbursed . . . It's like they say they want this, but there's no funding for it, and it's like well where does that money come from . . . It comes out of the pockets of the program, which comes out of the pockets of the staff, and that's the reality of it, in my opinion, and I've been doing this for almost 30 years." Many providers also felt unprepared to follow the state-licensing guidelines, which included abiding by CACFP, "Honestly, I think a lot of people just get thrown into it. There's an introduction to licensing training you have to go through. There's not a lot of support . . . I was just thrown in . . . and you just make mistakes and learn from them."

Providers described vendors and suppliers, including the patchwork of stores at which they shop, as prominent influences on food decisions at the level of purchasing. While decisions on where to shop often involved a balance between price, convenience, and quality, several providers

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also mentioned business practices and trust as important. The following quotes illustrate how two providers navigate price, convenience, and quality: “I like to go to [discount department/grocery store] because a lot of the things are like half the price, or three-fourths of the price of what [the grocery store’s] is . . . I don’t want to drive 35 minutes to go to the grocery store, but when it’s a \$300 savings, it’s huge.” “I go to box stores . . . I have found that [low-price warehouse grocery store] has actually better quality of fruits and vegetables. . . .”

Other providers described trust and liability as important components of decision making, for example, shopping at stores themselves vs ordering food from vendors that shop for and deliver the food: “. . . I have heard of people that have done that and they get stuff that’s just not up to standards. I want to know what I’m buying. I don’t have time for to have it to come here and then find out it’s no good and then I have to take it back.” Providers also described uncertainty about sourcing from new suppliers, such as farmer’s markets, due to regulatory barriers. Finally, a few providers who were part of multi-site organizations mentioned they had less autonomy and choice because they were contractually locked into specific vendors or suppliers. As one provider of a multi-site organization described, “A lot of our vendor relationships are mapped out on the national level . . . At one point . . . I was trying to work with our supply management team at our corporate office on developing relationships between [a national vendor] and a few other more local, organic providers. . . .”

Physical Environment and Settings

The early care and education site itself emerged as important to food purchasing decisions because of mission, financial resources, and structure. Several providers mentioned that they perceived food to be part of their organization’s mission: “That has always been our mission, to provide an environment where mothers or parents could leave their children and feel that they’re safe and having a good education and having healthy meals and that type of thing.” The range within which providers could accomplish this mission depended largely on the program’s financial resources for food purchases. One participant acknowledged the high price necessary to support a larger food budget: “. . . if you’re a poor kid, you’re less likely to afford, your family is less likely to afford a program like ours, and we have a lot of privilege here . . . our food budget is about \$55,000 a year, so that’s a lot of money.” The structure of the program in terms of having trained and dedicated staff for food preparation was also discussed and this was heavily dependent on financial resources. While hiring trained staff can be expensive, providers described trained staff as being able to reduce food budgets in two ways: 1) by engaging in more scratch cooking, and 2) through more efficient menu planning and meal preparation.

Many providers noted the importance of the child-care facility itself in terms of adequate space, kitchen equipment, and food storage. It was noted that ample kitchen size and the right equipment helps staff prepare meals faster and more efficiently, especially in large quantities: “my equipment is very underpowered . . . so it takes quite a long time.” In addition, providers noted that inadequate kitchen

equipment and food storage predisposed them to purchase more processed foods. “I can tell you the French toast is processed. . . . That’s what has to make sense for the kitchen size. When we get back there, you’re going to see a standard kitchen, similar to what I have in my house, what you might have in an apartment. And it’s for 112 people, cooking daily, so there’s limited space and ability to cook.” Storage space also emerged as a particularly important and widespread challenge. More storage enabled providers to buy in bulk, resulting in fewer shopping trips and cheaper per-unit prices. As one home provider noted in comparing her site with centers, “The difference is they can buy a lot more bulk than we can. They have a lot more storage. Us, as family child-care providers, we have to shop a little bit more often, and be a little bit more picky because we can’t buy as much as they can buy at once.” However, even providers with ample storage space mentioned that frequent shopping trips are still needed for fresh produce. Our on-site photos of kitchen space and food storage supported these findings (Figure 1).

Social Environments

A few providers mentioned the impact of the professionalization of the early learning industry in terms of an important defense against the perceived lack of support and training offered by the state, particularly when compared with K through 12 education: “There’s not a lot of support . . . I mean, elementary school teachers get all this special-ed training and all these things. We don’t get anything, so a lot of us . . . I was just thrown in, figured it out and asked my fellow directors questions as they arose, and you just make mistakes and learn from them, which is unfortunate, but there’s no money that goes into this . . . really, it’s just asking each other for help.” Providers emphasized the benefits of a more formalized network for benchmarking and learning from other providers. Importantly, providers felt that recognition of their work as a profession would go a long way toward supporting the importance of their contributions to child nutrition and health. As one respondent put it, “And I do a lot of training and I have a bachelor’s degree . . . it is my profession, but we’re not a child care, we’re not a day care, we’re a school and so that’s how we see ourselves.”

Providers also benchmark themselves against their peers and their previous early care and education employers. As expressed by one provider, “Her cooking’s very different. Her menus, I think, are done weekly, but her system is totally different from mine . . . I’m like, Wow, you serve your kids what?! Totally something my children wouldn’t eat, but her children would.” Another provider described how she would look at other site’s menus for ideas.

The influence of the parent/family community on provider food purchasing decisions was mixed. On the one hand, parents were portrayed as drivers of healthier foodservice. As one cook depicted, “So when I came to this school it was in bad shape. The parents were very upset with the food program.” As another described, “If there’s too much wheat or not enough protein, the parents are the first to come and let me know.” On the other hand, parents were also labeled barriers to healthier foodservice: “It’s incredibly difficult to convince people to make healthy change for children in early

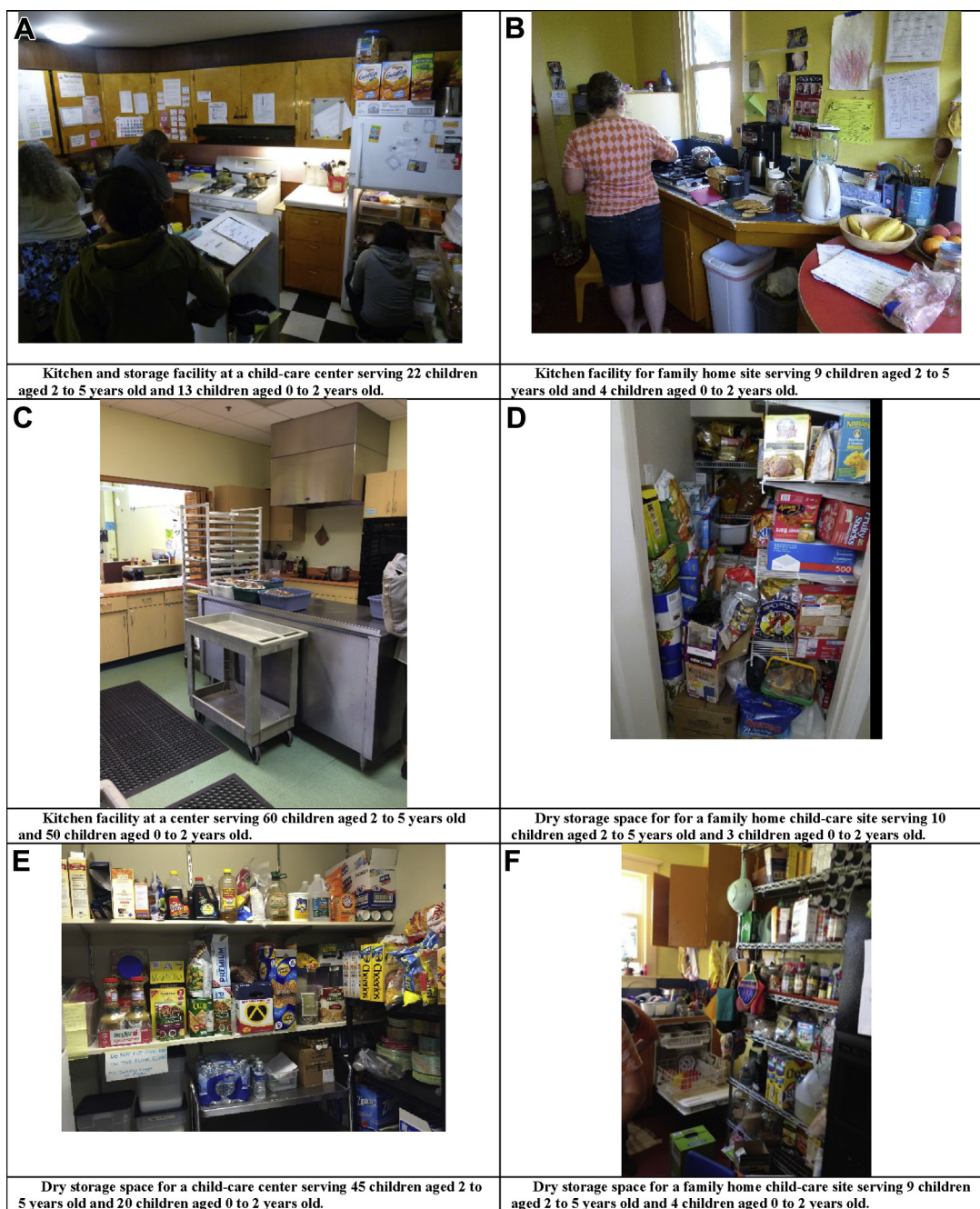


Figure 1. Photographs taken on-site at child-care sites participating in a study on influencers of child-care food purchases illustrate variations in kitchen and food storage facilities in child-care centers and family homes, Puget Sound region, Washington.

childhood education. It's surprisingly difficult. I can tell you, I've met resistance time and time again, both with cooks, with teachers, with parents. . . . Interestingly, providers often perceive that these opposing views can be expressed in simultaneous and conflicting ways by parents, as described by one provider, "Why don't we have more organic foods? . . . The flipside of that is, "You guys are serving spears of broccoli for afternoon snack. I don't want that for my child. Can you serve them something they'll eat? They don't eat broccoli, and they're hungry."

Yet, the majority of providers seemed to feel that, overall, most parents were fairly unconcerned about child-care menus, as described by these providers: "It used to be where the parents were really like dedicated to the menu, so I could show you one of our original menus, so the parents would plan that that's what the kids are eating. And now none of the parents even care." ". . . They're not so much interested in what we're feeding them, it's just, When are they eating? What do I need to bring?" "But as far as what I pick out for food or not, they don't care."

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Providers explained that parents often vetted the menus and foods served by providers during the initial child-care selection process: “When they first start, they’re like, ‘Okay, do you do this, this, this, this? . . .’ ‘Oh, you don’t serve cookies? . . .’ ‘You don’t do [fruit gelatin]? . . .’ ‘What about juice? Um, let’s see,’ and they go through the menus. That’s the only time is when they first start. After that they’ve either eliminated you because they don’t want to go to your center . . . or yeah, they’re fine with that.”

Other parent drivers of food purchasing decisions included specific requests related to allergies and values or beliefs (eg, organic, genetically modified organism-free). Diet-related allergies were prevalent at most sites, as discussed in the next section. Parents frequently request organic foods. One provider noted, “In terms of parents, I would say the organic piece is the main thing.” Providers reported responding to this, as budgets allowed, by purchasing organic milk and purchasing organic fruits and vegetables, particularly avoiding produce shown to have high pesticide residue levels (ie, “the dirty dozen”).

Less frequently mentioned as drivers of food purchasing were the food preferences due to cultural, religious, or other reasons, and eating habits of families. However, a few providers did note a shift toward more vegetarian foods.

Individual-Level Factors at the Provider and Child Level

Provider personal characteristics emerged as influential in food purchasing decisions. Providers often mentioned their value positions around the environmental and animal welfare impacts of our current food system as influencing food purchases. For example, one provider explained why she purchased eggs from one store over another, “Because they have the nice eggs. [The other store] has mean eggs.” Similarly, providers’ ideological beliefs influenced their views about food regulations and on local foods. For example, one participant expressed reluctance about changes to food regulations that forced a change from white to whole-wheat tortillas: “Because the government is trying to control what we eat.” Another participant commented on local foods, “Well it doesn’t make any sense from a personal philosophy that I should . . . anybody should spend the gas or the money to send for something super far away and then travel it all the way back. That’s not good for the planet. And we should be supporting whoever is local here in our immediate area.” These personal values were often tied to the providers’ own experiences of eating as children. For instance, some providers who grew up in the region had nostalgic memories of local produce and desired similar experiences for the children in their care: “Because they were local and I knew that they were in season now, they were just dropping off trees now, and I thought the kids should get a treat like that. I mean I grew up eating tree fruit in Washington. These kids are a little more subtracted from that whole tree fruit thing.” On the other hand, providers with negative childhood memories of food desire the opposite for children. For example, one participant explained her interest in taking fried foods off the child-care menu because of her frustration with the pervasiveness of fast food in her childhood.

Providers described food selection and purchase as being impacted by the children themselves in two major ways:

1) children’s preferences by taste and presentation (eg, texture, form); and 2) children’s physical needs (ie, what they need for health and growth, what must be restricted due to allergies and intolerances).

In terms of taste and presentation, providers often described children eating best when food tastes good, is attractive, and has the right texture; this was often considered to be age-dependent. Providers described how they would boil or puree a vegetable for the younger children so that as they got older they would already have a taste preference for it. Many providers mentioned how they encouraged children to try new foods through repeat exposure and peer influence. For example, one provider noted, “Picky eaters, yeah. Usually we say our goal with the menu is to get children to try new things. We don’t want to cater to selectiveness. We want to encourage. And children usually need to try something 10 to 12 times before they’ll accept it as a new flavor.” To facilitate the positive benefits of peer influence, many endorsed family-style eating, a practice where children share a meal together, served family-style. In addition, many providers noted the power of food engagement projects to influence the food preferences of children, particularly in terms of getting them to eat more vegetables and sometimes fruits. The majority of providers mentioned gardening projects and showed gardens to the research team during on-site tours. One provider commented, “. . . We do garden education . . . we did a thing last year . . . called purple potted pole beans from the pea patch . . . they were ‘magic beans,’ we said, so when we picked them they were purple, but when we cook them they were green. So the kids ate them raw and then they ate them cooked and we had this big experiment, do you like them better raw or cooked? . . . They like get excited about it. And then of course they’re going to eat it because they’re curious about it.” However, some providers were unclear whether the regulations allowed them to serve food grown from these gardens to the children.

The physical needs of children were described as important to food procurement in terms of children’s needs for health and growth and for avoidance of allergies and intolerances, with the latter seeming to strongly affect food purchasing decisions. Children’s needs for growth and health were frequently intertwined with discussions of state or other regulations around the types of food and nutrients they were required to serve. For example, one provider who was well-versed in nutrition knowledge mentioned children’s needs in terms of vitamin A, D, calcium, and protein: “. . . looking at research and how important healthy eating is to children’s development, it makes a difference. . . . It helps to develop their muscle, their bones, all that having enough calcium, having enough A, having enough D, all of that, protein without having too much protein. All of that is important for how they develop.”

Other providers described children’s nutritional needs in terms of food, explaining, “The idea of putting bread at the meals is bothersome to me because I think they’re getting enough of that. And I think our 11 servings switched when they switched the plate back, so they cut that, they realized they had way too much in the grain product.”

The avoidance of allergies and food intolerances was a common topic in provider interviews and our on-site observations of extensive lists of allergies posted throughout sites supported this finding (Figure 2). Food allergies and

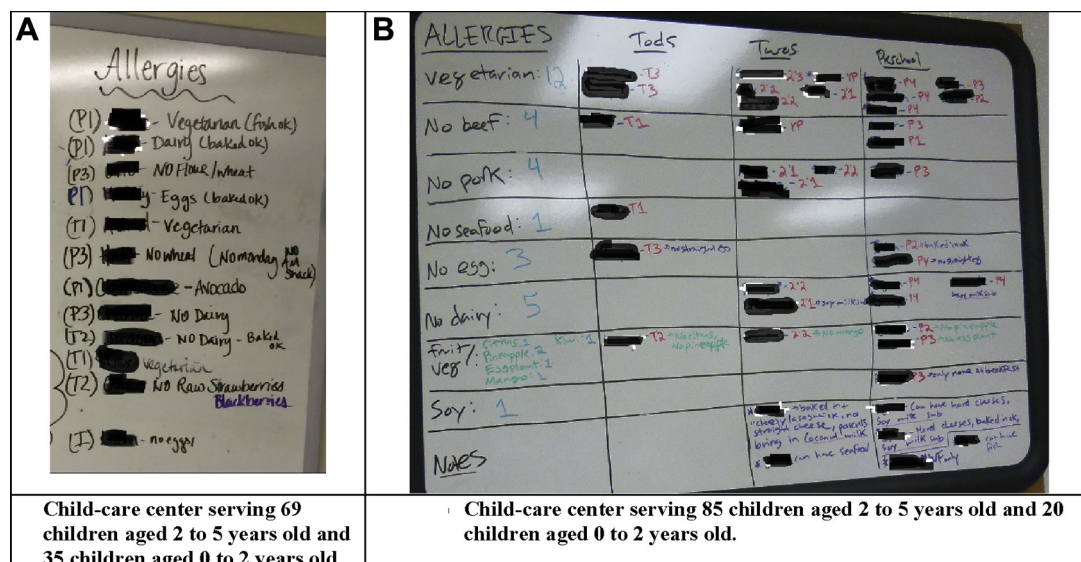


Figure 2. Photographs taken on-site at child-care sites participating in a study on influencers of child-care food purchases illustrate the detailed food allergy lists that providers often display in foodservice areas, Puget Sound region, Washington.

intolerances to nuts, dairy, eggs, and gluten were most frequently mentioned as driving the types and amounts of foods purchased; also mentioned were allergies to berries and soy. Many providers mentioned that food substitutions for these items were often more expensive than the original items and that these could impact the overall food budget. Others described a scenario where parents would bring substitute foods for their child to the site. Regardless of which route was taken to provide food substitutions, it seemed that providers spent a considerable amount of time daily maneuvering through food allergies and intolerances. As one provider described: “When kids enroll we ask if they have any food allergies. . . . Then we have a list in the kitchen . . . and so everybody knows who . . . it’s posted on every refrigerator in the building so whenever anybody goes to get food, they know who can’t have dairy, who can’t have . . . luckily, the only severe ones are the nuts, and so the peanuts, and so since we don’t allow them at all in the building, we don’t have to worry as much about that one, although we have had kids, we have had parents forget and bring things in.”

DISCUSSION

Ten themes (regulations, suppliers/vendors, organizational mission/budget, the facility itself, professional networks, peers, site-specific family community, provider knowledge/values, child food preferences, and allergies) emerged as important influences of early care and education provider food purchases. When categorized into an ecological framework, these influencers depict a complex system that operates and interacts at multiple levels. We provide a model that combines study themes in ecological framework categories with a logic framework to illustrate the complexity of this system (Figure 3).^{14,16} This framework identifies potential pathways of intervention and outcome and underscores the need to design comprehensive and systems-based interventions to improve the nutritional quality of foods served in early care and education settings.

Four themes emerged in our research over and above themes found in related studies: vendors/suppliers; the facility itself (ie, kitchen equipment, food storage); professional networks; and child food allergies.¹⁰ This is likely a result of differences in the breadth of the interview guide (ie, this study focused on general food purchasing vs healthy only) and the use of on-site interview methodology.¹⁰ First, a patchwork of vendors, suppliers, and stores was used by most providers to meet all their food purchasing needs and yet they were reticent to use online ordering and food delivery services. Given the time constraints on providers, this theme needs future exploration. Second, similar to schools, kitchen size and equipment and food storage also emerged as important in supporting food preparation and purchases within program budgets and in driving the quantities of processed food used for children. Third, early care and education provider professionalization was discussed as a crucial need to provide legitimacy to the importance of their work.¹⁷ Fourth, almost all providers emphasized the high prevalence of child food allergies and intolerances—with some mentioning these were often undiagnosed. While diagnosed food allergies and intolerances should be taken seriously, this appears to be an avenue through which parents drive providers into adapting to a family’s eating trends, habits, and beliefs. In addition, one interesting finding noted in provider quotes was the use of nutrient-based vs food-based descriptions of the nutritional needs of children (eg, children needing vitamin C vs a serving of fruit) by various providers, which may have implications for how future guidance and regulations are developed for and learned or interpreted by providers.

Congruent with previous research, this study found that the foods providers select are influenced by peer behaviors; children’s preferences and physical needs; family eating habits; site budgets; cost, quality, and convenience of suppliers/stores; and, regulations.^{5,10,18,19} Also consistent with prior studies, this study found that providers perceive parents as disinterested in foods served to their children on a



day-to-day basis.^{5,18} However, our work expands previous explanations in that providers described how parents “vetted” menus during the initial child-care selection process or that parents may indirectly drive food purchases via undiagnosed food allergies and intolerances, as discussed here. An alternate explanation could be that parents often do not have a choice as to which child care their child is accepted into because of the lack of available child-care slots in the area. This may also have important implications in terms of how child-care providers are or are not compelled to compete for parents and how this trickles down into the services they provide.

The limitations of this study include small sample size in one geographical region and that the decision to participate in the study may reflect some inherent bias or interest in food and nutrition by the provider or early care and education site, both of which limit generalizability.¹¹ In addition, the recruitment methodology employed (ie, e-mail listservs) limits our ability to quantify the total population that received or read the invitation. However, strengths include on-site observations as recommended by previous research, and expanded insights into the variety of factors that influence food purchasing by early care and education providers.¹⁰

CONCLUSIONS

With the majority of US children enrolled in some form of child care, early care and education settings represent a valuable opportunity to positively impact young children's diets and their interactions with food. This study suggests that a more system-based understanding and approach—one that accounts for an array of influencers and their interactions—is necessary to take advantage of important opportunities and address barriers to improving child-care nutrition.

Future research should focus on teasing out the most influential factors via applying more quantitative methodologies, designing and testing systems-based interventions, exploring the benefits of a more professional early care and education network, and replicating this study in other locations.

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STATEMENT OF POTENTIAL CONFLICT OF INTEREST

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