TBM

ORIGINAL RESEARCH

Understanding the process of implementing nutrition and physical activity policies in a large national child care organization: a mixed-methods study

Sarah L. McKee,[1] Kristen Cooksey-Stowers,[2] Rebecca St. Louis,[1] Marlene B. Schwartz[1,2]

[1]Department of Human Development and Family Sciences, University of Connecticut, Storrs, CT, USA 06269

[2]Rudd Center for Food Policy & Obesity, University of Connecticut, Hartford, CT, USA 06103

Correspondence to: Marlene B. Schwartz, marlene.schwartz@uconn.edu

Cite this as: *TBM* 2019;XX:XX–XX
doi: 10.1093/tbm/ibz045

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ABSTRACT

Learning Care Group made a three-year commitment with the Partnership for a Healthier America to implement several evidence-based nutrition and physical activity policies in over 900 child care centers. New practices included serving more fruits and vegetables; eliminating sugary drinks and juice; family-style dining; healthier celebrations; limiting screen time; increasing outdoor play time; and supporting breastfeeding. A sequential convergent mixed-methods design was used to describe changes in center practices over time; organizational support for changes; and center director perceptions of the implementation process. Data were collected through an interview with organizational leadership; document review; and online center director surveys at 6, 18, and 36 months. The final center director survey included open-ended questions about policy implementation. Written responses were coded and overall themes were extracted by integrating the qualitative and quantitative data. The five overall themes were to: take a comprehensive approach; build the initiative over time; provide structural supports; replace old practices with new ones; and communicate thoroughly. Center leaders reported primarily positive reactions to healthier menus, juice removal, and increased physical activity. The most controversial policy concerned healthier celebrations. Center directors reported that the staff and children adapted quickly to changes, while some families required more assistance. The experience of this large child care organization can inform other efforts to implement early care and education wellness policies.

Keywords

Child care, Early care and education, Nutrition policies, Physical activity policies, Childhood obesity

Implications

Practice: Key components of successful early care and education wellness policy implementation were: taking a comprehensive approach; building the initiative over time; providing structural supports; replacing old practices with new ones; and investing in communication.

Policy: Early care and education leaders should create and track compliance with comprehensive policies that address wellness in order to support healthy eating and physical activity for children in their care.

Research: The healthier celebrations policy was the most controversial with parents; therefore, future research should test which messaging strategies are the most persuasive for parents of young children.

Nearly one-third of children under 5 years of age regularly spend time in out of home child care [1], making child care centers a critical setting for childhood obesity prevention efforts [2]. Over the past decade, policy recommendations to ensure that early care and education settings support healthy nutrition and physical activity have emerged from government [3] and professional organizations, including the Society of Behavioral Medicine [4]. To encourage action to address the problem of childhood obesity in the USA, First Lady Michelle Obama launched the Let's Move! initiative and created the Partnership for a Healthier America (PHA) to facilitate public–private partnerships [5]. PHA has partnered with many commercial sectors including food and beverage manufacturers, food retailers, restaurants, hospitality, and early childhood education providers. Companies that partner with PHA commit to make changes to address childhood obesity and agree to undergo an external verification process. Over the past 5 years, several child care organizations have pledged to implement policies that align with the goals set forth by the White House Task Force's report and the Let's Move! campaign [5] and are based on national recommendations, including the Dietary Guidelines for Americans [6]; Caring for Our Children [7]; and the Robert Wood Johnson Foundation's Healthy Eating Research beverage recommendations [8].

Published online: XX XXXX 2019

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Although there is consistent agreement in the field about recommended early care and education nutrition and physical activity policies and practices, there is less information about how to best implement these changes. A recent review examined six qualitative and six quantitative studies published between 1994 and 2015 that addressed the facilitators and barriers of implementing healthier menus in child care centers [9]. Among the primary barriers identified were staff perceptions about what foods children liked and disliked; lack of sufficient skills in menu planning and cooking; lack of time; and concerns about food waste and higher food costs. On the other hand, the primary facilitators were the availability of resources such as sample menus; strategies to contain costs; staff communication and collaboration; and a supportive environment where nutrition policies are enforced and staff role model healthy eating behaviors. The authors note that the qualitative studies identified a greater number of types of facilitators and barriers than the quantitative studies because respondents were free to share concepts that had not previously been identified by researchers [9].

In one qualitative study, Lyn and colleagues conducted semistructured interviews with 20 child care center directors in southwest Georgia about facilitators and barriers to implementing a wellness program at their centers [10]. The directors reported that the children were amenable to changes in menus and physical activity and responded particularly well to hands-on learning experiences with gardens and food. Nutrition and physical education were facilitated by books, CDs, and online resources. Engaging parents was the most challenging component of the wellness program. In another study, Dev and colleagues interviewed 18 child care providers in central Illinois about the barriers providers faced when speaking with parents about their children's nutrition [11]. A number of themes emerged, including worry about offending parents and the belief that parents do not want to be told how to feed their own children. Interestingly, some of the providers worked in Head Start centers, which have a clear policy prohibiting outside food. These providers reported a much easier time communicating with parents about limiting outside food than providers who worked in centers without a clear policy.

These studies provide valuable insights regarding the challenges and supports encountered by providers when implementing components of wellness policies; however, the work to date has been limited to fairly small samples in limited geographic areas and has not directly addressed directors' perceptions of the impact of health-promoting policy changes. In 2014, Learning Care Group (LCG) signed a 3 year commitment with PHA to adopt key recommended nutrition and physical activity practices in its approximately 900 child care centers nationwide and the Rudd Center for Food Policy and Obesity was selected as the external verifier. Verification involved reviewing policy materials, conducting mid-point (18-month) and final (36-month) surveys to assess compliance, and reporting the findings to PHA [12]. An initial survey at 6 months was added to identify which practices were in place and which needed support. In the final survey at 36 months, open-ended questions were added to gather comments from center directors about the implementation process.

Thus, this is the first mixed-methods study of approximately 900 centers around the country that combines: (a) quantitative center director survey data to document the prevalence of nutrition and physical activity related practices at 6, 18, and 36 months; (b) qualitative survey data to capture center director perceptions of the facilitators, barriers, and reactions to specific policy changes from key stakeholder groups; (c) qualitative findings from key informant interviews with LCG national leaders to describe the strategies used to implement a comprehensive set of nutrition and physical activity policies; and (d) data from a review of policy and implementation documents.

METHODS

Using a sequential convergent mixed-methods approach, the quantitative verification survey data were supplemented with qualitative data collection from the center directors and LCG leadership and document review. To contextualize the implementation process, our analyses integrated key findings from the qualitative and quantitative data. The study design and all data collection instruments were reviewed by the University of Connecticut Institutional Review Board, who determined the study did not meet the regulatory definition of "human subjects research" because all questions concerned the program and not an individual. We used the Standards for Reporting Qualitative Research checklist [13].

Quantitative survey

An online survey using Qualtrics was used to collect data from the entire network at 6 (August 2014), 18 (August 2015), and 36 months (February 2017) after the original commitment. Survey items were selected from a validated child care director self-report measure [14] to address practices relevant to the PHA commitment. LCG staff reviewed the wording of the items for clarity. Because the PHA commitment practices were branded *Grow Fit*, this term was used when appropriate. The network included 882 centers at 6 months, 875 at 18 months, and 971 at 36 months. LCG emailed the link and invited center directors or assistant directors to

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complete the survey (one respondent per center). LCG sent reminders to nonrespondents from LCG and each survey was open for approximately 6 weeks.

Qualitative survey questions

To assess center directors' perceptions of the process of implementing *Grow Fit*, open-response questions were added to the end of the 36 month center director survey. Items were written using a phenomenological approach in order to solicit a rich portrait of multiple aspects of directors' shared experiences while implementing the policies in their centers [15]. Prior to fielding the survey, LCG staff provided input on the specific wording of the questions to ensure clarity. We asked: (a) "What were some of the factors that contributed to success at your school in implementing *Grow Fit* policies, specifically regarding food and physical activity, with staff, children and families?" and (b) "What were some challenges that arose at your school in implementing *Grow Fit* policies, specifically regarding food and physical activity, with staff, children and families?" We downloaded deidentified text responses from Qualtrics into Microsoft Excel [16,17] and each respondent was given a subject number. The data were organized by assigning each respondent to a row and placing his/her answers to the two questions (if provided) in the columns.

Key informant interview and document review

Based on the quantitative and qualitative findings from the center directors, we developed semistructured questions for LCG leadership to learn how they provided resources and communicated with the centers and families about specific policy changes. One member of the research team led a 1 hr key informant interview via conference call with three staff members who were selected by PHA and LCG as participants. They were the Senior Director of Operational Compliance, who oversees the implementation of all company policies; the Registered Dietician Nutritionist, who developed the new *Grow Fit* menus; and the Director of Corporate Communications, who manages the relationship with PHA. The researchers took notes during the interview. Subsequently, we obtained copies of LCG's *Grow Fit* policies before and after the commitment and other key documents distributed to the network to support policy implementation.

Data analysis

We used frequencies to analyze the quantitative survey data for each year. We performed content analysis on the directors' responses to the open-ended questions [18]. We created an initial version of the coding guide after becoming familiar with a subset of the answers, generating codes based on the identified themes. Two research assistants trained in qualitative methods independently coded the data. After the first round of coding, the coders met to resolve discrepancies and made minor revisions to the coding guide. The coders met consistently to reach consensus regarding the application of codes, validating our analysis of individual responses [15]. The *Policy Changes* code was used when a comment referred to a particular policy. This code contained 12 subcodes reflecting the specific policies that were implemented in the centers. The *Resources* code was used when a comment referred to any source of support that influenced policy implementation. These could be physical, such as playground equipment and kitchen space, or abstract, such as the ability to share information with families. This category contained seven subcodes that captured the types of resources that center directors reported as either facilitators or barriers to policy implementation: kitchen space; communication and education; curriculum; external expectations; weather; existing policies; and the food distributor. The *Consequences* code had six subcodes: unexpected consequences; cost; attitude changes; requests for healthier foods and accommodations; strategies to promote healthy foods; and strategies to promote physical activity.

After coding, we calculated how frequently specific policy changes were mentioned, whether the comments reflected positive or negative reactions to the policy, and whether the comment was general or attributed to a specific stakeholder group (staff, children, and parents). The purpose of this analysis was to explore how each stakeholder group was reacting to specific policy changes. Next, we used the interview notes to identify the strategies LCG employed to support implementation and analyzed the documents to identify the exact language in the policies and materials provided to centers. Finally, we extracted key findings by integrating our qualitative and quantitative results and verified findings with LCG and PHA staff [19].

RESULTS

Quantitative survey

There were very high response rates for the 6 month (843/882; 95.6%) 18 month (819/875; 93.6%), and 36 month (958/971; 98.7%) surveys. The findings are presented in Table 1. Many of the practices were in place in most centers at 6 months; however, several improved during the subsequent assessments: serving more fruits and vegetables each day; family-style meals; healthy celebrations; limiting juice; decreasing whole and increasing skim and 1% milk for children over 2; and providing access to water throughout the day. Most centers reported successful communication with families about screen time, healthy eating, and physical activity.

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Table 1 | Partnership for a Healthier America commitments and compliance

Goal	Practices	Compliance		
		6 months	18 months	36 months
		N = 843	*N* = 819	*N* = 958
Increase physical activity	At least 1 hr throughout the day	89%	89%	88%
	Outside play when possible	89%	89%	88%
Decrease screen time	Eliminate screen time for children under 2 years	97%	97%	95%
	No more than 1 hr per day for children over 2 years	99%	100%	99%
	Work with families and caregivers to ensure children have no more than 1 hr of screen time per day	87%	87%	83%
Serve healthier food	At least two servings of fruits and/or vegetables per day	63%	95%	95%
	Eat meals family style	71%	82%	99%
	Healthy celebrations	67%	72%	80%
Serve healthier beverages	Eliminate whole milk for children over 2 years old	90%	89%	92%
	Serve no more than 4 ounces of 100% juice and/or low sodium vegetable juice per day	84%	94%	100%
	Provide access to free drinking water throughout the day	78%	95%	96%
	Do not serve beverages with synthetic dyes, stimulants, and additives or added nutritive or non-nutritive sweeteners	100%	100%	100%
Support healthy infant feeding practices	Allow mothers to breastfeed or provide their child with breastmilk during the day	98%	99%	98%
Increase parent engagement	Engage parents in focusing on healthy eating and physical activity at least three times per year, using informational material and activities	76%	71%	71%

Qualitative data

The response rate for the director survey qualitative questions was 56.8%, with 552 center directors responding to one (*n* = 59) or both (*n* = 493) of the open-ended questions about contributors to success (facilitators) and challenges (barriers) in implementing the new wellness policies. In total, there were 1,045 comments coded (522 facilitators and 523 barriers). Examples of positive and negative comments for each theme are presented in Table 2. Figure 1 illustrates the number of positive and negative reactions by policy and stakeholder.

All of the data from the center director responses, the LCG leadership interview, and the document review are integrated into five overall themes: take a comprehensive approach; build the initiative over time; provide structural supports; replace old practices with new ones; and invest in communication.

Take a comprehensive approach

LCG branded this initiative *Grow Fit*, which communicated that all of the individual policies fit into a coherent whole that was designed to shift the culture. The Health and Safety Manual contained all of the components of the *Grow Fit* Policy in one place and all centers were provided *Grow Fit Certificates*, which are colorful wall signs that explain the five goals (i.e., physical activity, screen time, food, beverages, and infant feeding) in the commitment to PHA. Parents were provided information about *Grow Fit* through the parent handbook and company newsletters.

In their survey responses, center directors mentioned how the array of nutrition and physical activity policy changes helped change the culture of the centers and supported the success of the *Grow Fit* program as a whole. One leader commented, “The healthy menus and celebrations have been very helpful in creating a healthy mindset for the whole school and the families we serve. We provide an hour a day of gross motor activity, and also .... teach our 2.5-5-year-olds through physical activity about the importance of eating healthy and living an active lifestyle.” Another fundamental message in the *Grow Fit* materials is the benefit of early adoption of healthy behaviors to “build an entire generation of healthy kids.” Center directors referenced how the new healthier menus, family-style meals, teacher modeling, and encouraging children to taste new foods all converged to facilitate early adoption of better eating behaviors: “Healthy menus were very beneficial in allowing children to taste and serve themselves fresh fruits and vegetables, which many of our children had not previously been introduced to.” Others said, “I can also see that the children that have grown up with our *Grow Fit* menu eat healthier than the friends that get introduced to the menu when they enroll in the older classes” and “Healthy menus makes a big difference. The younger they are, the healthier they get used to eating!”

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Table 2| Summary of emergent themes and examples of positive reactions (facilitators) and negative reactions (barriers) to the Grow Fit initiative

Categories	Themes	Positive reaction examples	Negative reaction examples
Policy changes	Physical activity	"The teachers doing the three minute work outs and getting the children involved really helps"	"In the summer it is very hot outside and we have to get creative with indoor activities to keep the kids moving"
	Outdoor time	"We encourage the teachers to bring the children outside more often not only for physical activity but to involve curriculum"	"Parents sometimes complain about going out into the elements"
	Screen time limits	"Love no screen time"	"Families were upset they were not able to bring tablets etc. during school breaks and holidays"
	Healthier menus	"The families love the nutritious meals we provide"	"The healthy menus are not always easy to get the kids to try - or the teachers"
	Family-style serving	"Making sure that children self serve, that really helps with children trying new and different foods"	"We have to re-visit family style dining at least once a year"
	Removal of juice	"No juice is great!"	"Parents would like their children to have fruit juices at least once a week"
	Milk provided	"Parents are very happy [...] that we provide milk instead of juice"	"Milk consumption with children who were not "raised in [our centers]" is also very hard"
	Water provided	"Most parents are happy that the intake of water has increased"	"They do not like having just water"
	Healthier celebrations	"Incorporating healthy celebrations have also been a success"	"Some of the parents were not happy that they could not bring cupcakes for their child's birthday"
	Restrictions on outside food	"Sticking to our policy of no outside foods"	"Families still have a hard time with the no outside food policy"
	Encouraging tasting new foods	"A focus on trying new and healthy foods"	"Some of the challenges we have experienced has been introducing foods that children are unfamiliar with"
	Modeling healthy behaviors	"After [...] the children seeing the teachers eating the lunch as well the children started to try the foods and realized they really liked them"	"It is challenging to get staff to adhere to healthy foods in front of [students]"
Resources	General resources (physical)	"The addition of our Indoor Grow Fit Gym has been a hit" "We have incorporated an exercise teacher that comes once a week to show our three and up children how to be more active"	"Limited accessibility in our kitchen" "Not having enough room to store frozen vegetables"
	Communication and education	"Communication with families and training for staff were the key factors to our success"	"Staff has seemed to have a limited amount of training as to the benefits of the Grow Fit program" "It was a challenge to get all to understand why we can/cannot serve certain items"
	Curriculum	"The teachers talk with the children about healthy food and physical activities while in circle time or just playing outside" "I have also found that students really enjoy ... learning about healthy life styles"	None
	External expectations	"I also think that here in our community we are more apt to have families already following something similar at home"	"It's not easy to squeeze in extra playground time with the academic expectations"

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Table 2| Continued

Categories	Themes	Positive reaction examples	Negative reaction examples
	Weather	"We take the children outside for activity and when the weather is nice the children stay out longer"	"The only obstacle for outdoor time is in the heat of the summer" and "Some parents do not like their children to go outside when the weather gets colder"
	Existing policies	"We eliminated junk food for parties long before this program based on feedback from parents as well as teachers" "We have been doing these practices for several years"	None
	Food Distributor	"Taking those items off of the [vendor] order guide was extremely helpful"	"Constantly items we try to order through [our vendor] are out of stock or special order" "The fruits ordered from our food vendor often come to ripe or not ready at all" "Some of the fresh items are not able to be used because the come rotten or spoiled"
Policy consequences	Unexpected consequences	"Less behavioral issues with children when they have more physical activity"	"Children went home and would explain how hungry they are and eat a lot once home making parents feel like they were not eating enough at school"
	Cost	None	"Summer fruit costs has a hard impact on my budget (ex: watermelons are $10/ each)"
	Attitude changes	"Children were hesitant to try the foods on the menu, but over time became comfortable with new healthy choices"	None
	Requests for healthier foods and accommodations	"We had to alter the *Grow Fit* menus to meet the demands of MORE fruits and veggies parents were placing on us in our area"	"Children that have food restrictions have a difficult time following the policy"
	Strategies to promote healthy foods	"We also host an annual summer barbeque/potluck and we encourage our families to share healthy home foods with our other families!"	None
	Strategies for physical activity	"During summer having outside water activities" "Having teachers incorporate stretches into their circle time"	None

Positioning *Grow Fit* policies as supportive of other important early care and education goals added to their value. One director noted, "We are proud to say we love to have limited amount of screen time for the children. It allows them to be more creative with their own imagination." Increased time for physical activity, especially outdoors, was also very well received and credited with additional benefits. Directors noted "less behavioral issues with children when they have more physical activity," and that children had "better nap times." These positive consequences reinforce the case for a comprehensive policy approach.

Build the initiative over time

Another feature of the *Grow Fit* policy is its evolution over time. The original policy was written in 2011 and it has been revised as the program has become stronger. Center directors reported that the pre-existence of some of the practices facilitated their implementation of the PHA commitment policies. As reflected in the quantitative survey results, even prior to the PHA commitment, centers had removed beverages with dyes, additives, or synthetic sweeteners and provided support for breastfeeding. LCG leadership shared that breastfeeding supports in their centers had also became more robust over time, in part due to specific state programs that provided additional training resources and certifications.

Family-style meals was one of the commitment components that showed the greatest change over time, increasing from 71% to 99%. To support

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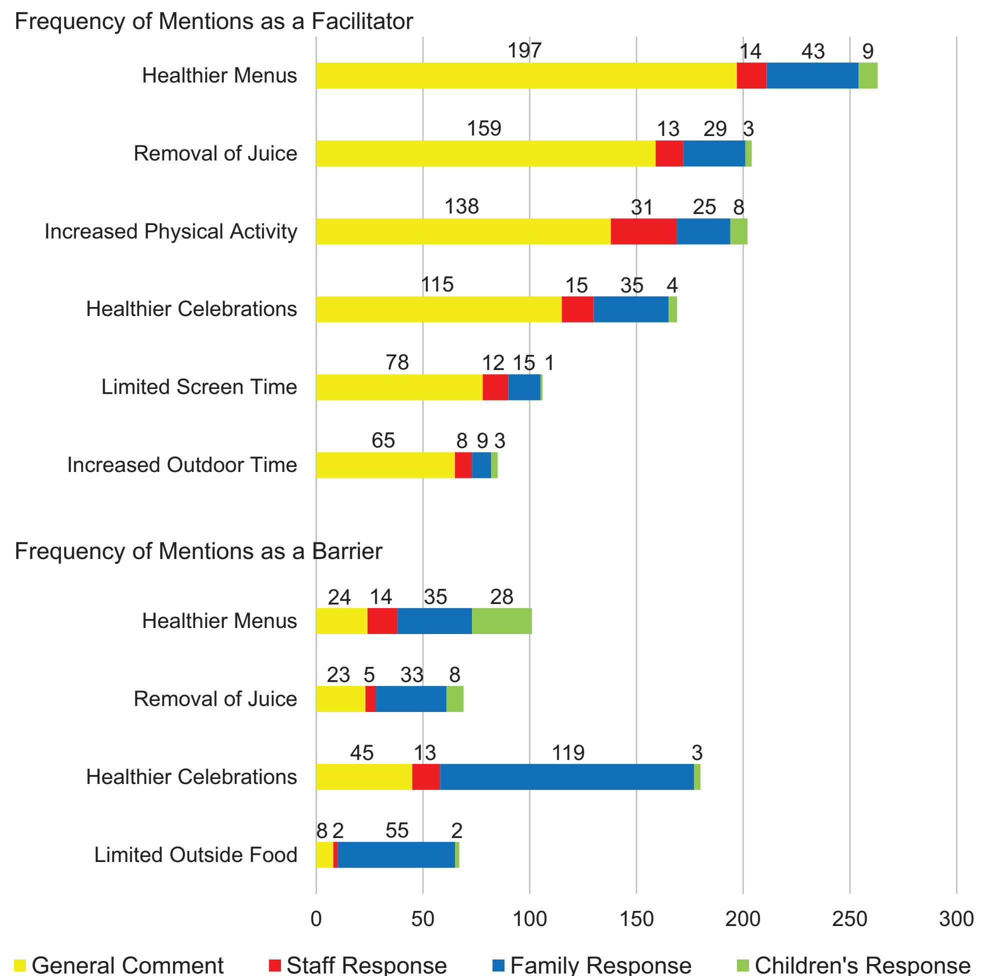

Fig 1| Frequencies of director's reports of responses to individual policy changes as facilitators and barriers to successful implementation of the Grow Fit program. Bars are divided to illustrate the proportion of responses attributed to each stakeholder group. Only topics mentioned 50 or more times are included in this figure.

this, the *Grow Fit* manual for the staff and the written policy were updated during the initiative to include a detailed developmental rationale for family-style eating, as well as clear definitions of the components, i.e., staff sit and eat with the children; the children serve themselves independently as developmentally appropriate (thus deciding the amount of food to eat); and teachers model table manners and encourage nutritional education conversations. Some center directors noted the importance of annual staff training on family-style eating to ensure consistency.

New menu changes included increasing whole grains and ensuring two servings of fruits and vegetables daily. The survey data indicate that compliance with two servings of fruits and vegetables increased from 63% to 95%. The increase in more fresh produce was very popular among parents according to the center directors: "our parents appreciate the healthy meals with fresh fruits and vegetables and low sugar" and "touring families also frequently compliment our unique meal choices on our menu." Another director commented, "It helped in showing that healthy food can taste good as well. Parents like the fact that we are using more fresh produce and limiting canned items." Leaders expressed satisfaction with "adding more of the whole grain into the menu ... not utilizing syrup and jelly for breakfast" as well as "removal of foods and drinks that contained a high amount of sugar." At the same time, the praise was not universal, and center directors needed to find strategies to ease the transition. One noted, "The children were not happy about the removal to the syrup and jelly and juices. We have encouraged them to use the fruit to put on their waffles, and such." Indeed, although healthy menus were mentioned most frequently when answering the question about facilitators to the policy changes, they were also the second most common topic mentioned in responses to the question about barriers. Children's resistance to menu changes was mentioned, and even parents were occasionally opposed to the changes, as one leader commented: "Surprisingly, a few parents are not a fan of the healthy menus and produce a doctor's authorization to bring in food from home."

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Provide structural supports

LCG leadership explained in the interview that the menu changes were supported by two structural characteristics of LCG. First, 5 week cycle menus developed by a registered dietician are provided to all centers to support their compliance with both the Child and Adult Care Food Program (CACFP) and *Grow Fit* policies. Second, all foods and beverages are purchased by directors from one national vendor. The options available from the vendor are managed at the corporate level, so when a product is no longer served, it can be removed from the ordering platform. On the other hand, center directors noted that a consequence of using only one vendor is that specific foods were sometimes out of stock.

The ability to remove specific food options from the vendor as a structural support was particularly helpful when implementing the policy to remove 100% juice and limit milk options. LCG leadership explained that they were able to change the platform, so only whole milk, 1%, and fat-free were available. They also explained that some states have additional regulations for milk in child care, which leads to some variation across centers, such as having fat-free instead of 1% milk. Consistent with the idea of building change over time, removing juice involved a multiyear process. First, the policy was to serve no more than 4 ounces a day, and in 2014, 84% of the centers reported they were compliant with this practice. Next, juice was only served three times a week, and finally the decision was made to remove it entirely. In spring of 2016, LCG informed centers that juice was going to be eliminated from the menus and to use up any current inventory. LCG leadership reported that there was "some pushback"; however, "people were used to hearing about changes and the commitment to PHA so they saw it as the next step." In the analysis of stakeholder reactions, there were substantially more overall positive than negative comments about juice removal, with families as the most common specific source of both reactions. Reflecting how individual policies work together synergistically, one director said, "I would say removal of juice helped us serve more fresh fruit at snack time."

Another change that received structural support was increasing water access. The proportion of centers that provided water throughout day increased from 78% to 96% over the study period. This was materially supported by LCG leadership with sets of small water pitchers for children to self-serve and water coolers with spouts and paper cone cups to bring outside. LCG leadership also reported that removing juice supported an increase in water consumption.

Replace old practices with new ones

The most controversial policies typically are the ones that involve taking something away. The healthier celebration policy, which was connected to a policy that limited outside food, triggered the strongest negative reactions—especially from parents. This finding is exemplified by a center director's description of the difficulties surrounding celebrations: "A major challenge was and continues to be the birthday celebrations…. Many parents still bring in cupcakes or typical party snacks and we just have to remain firm with our practice." Another director noted, "Healthy celebrations were difficult for the parents to grasp; as we implemented this they 'protested' in a way by not participating in one of the classroom celebrations; many parents did not offer to bring anything and some parents still brought items we asked them not to, but this was solved by sending the items back home unused and reminding them of our policy."

To address this challenge, several center directors reported providing suggestions for their families. Examples included, "healthy food contributions from the parents like fruit or veggie trays, yogurts, etc." and "ideas on 'trinkets' to bring in that are not food related, i.e., pencils, stickers, stamps, etc." One director "put together a binder for parents to help them choose healthy alternatives for birthdays and other celebrations." Another expressed a desire for company-wide guidance, commenting, "I would love a company written birthday celebration list with ideas that we haven't thought of."

In fact, LCG provided several resources to support the policy to have healthier celebrations. One was a 35 page "*Grow Fit* Celebrations Guide" for center staff that explains that "every celebration should have two key elements: movement and healthy food choices." This guide contains dozens of physical activity ideas as well as healthy fun recipes organized by season and event type that centers can create using the foods they have available. In 2016, center directors were given a letter to send to parents explaining that "in keeping with our pledge to Grow Fit, we're celebrating birthdays and special events in a healthy way." Centers were provided with templates of parent sign-up sheets prepopulated with ideas of healthy snacks for parents to bring (e.g., cheese, fresh fruit, low-fat dip, whole grain crackers). In order to clarify that this was not just due to nutrition concerns, the messaging to parents also noted that packaged foods protect children with food allergies.

Other examples of introducing new ways to celebrate were "dance parties with children" and outdoor events. One director shared, "For our Spring Fling, we are not having a party at all. We are having a field day." Another commented that while the center no longer allowed watching TV, "there is a TV with CD's that are for physical activity, such

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as yoga, jazzercise and exercise in the activity room that is used when the children cannot go outside due to weather."

Gardens have been introduced into some centers, which provide a particularly engaging way to teach nutrition and encourage children to eat fruits and vegetables. One center leader commented, "Our garden has been a great source of nutritional education. We were able to eat many of the veggies that we grew. We also made a stew this winter and asked each child to bring in one veggie. The garden is ready to plant again." Another leader mentioned, "In spring and summer my preschoolers grow their own garden and implement those veggies into snacks and lunch, which the parents love."

Invest in communication

Communication emerged as an important strategy overall, especially to manage the more controversial policy changes: "getting the parents on board with this…parent awareness is a must." On the removal of juice, one leader explained, "Parents did not like nor understand why juice was being removed from the menu. However, this is why we held the parent night for informative and educational reasons. They have adjusted to it well now." Another noted that "we have to again educate our teachers before we can educate our children." One director explained how communication served as a facilitator to implementing the company's wellness policy: **"**Really the most important aspect is to get the teachers on the same page, as they are the staff that speak the most to the parents and really inform the parents. We also send many reminders in monthly newsletters and talk with families about the importance of the [child care center] and home healthy lifestyle!"

A letter was sent directly to families about the *Grow Fit* menu changes in July 2016 that explained that the new menus would include more whole grains, fresh and frozen fruits and vegetables, lean proteins, zero juice, vegetarian lunch options, and an emphasis on multicultural items. The letter noted that young children can be picky eaters but cited research that exposing children to a wider variety of foods will increase acceptance, and teachers will be using creative activities to make trying new foods fun.

DISCUSSION

Taken together, the findings from this study suggest several reasons why LCG centers were able to successfully implement an array of specific nutrition and physical activity policies. Developing an organization-wide comprehensive approach to health and building the changes over time were an effective way to transform the culture of the company and the centers. Policies on physical activity, for instance, may have reinforced policies on screen time, leading staff, children, and families to gain a more complete understanding of a healthy lifestyle. Many child care centers concerned about childhood obesity and poor health may wonder how much to take on, and how quickly to do it. These data suggest that it is helpful to choose a few small changes and position them as synergistic strategies to move in the right direction. As new practices are implemented, child care providers can gradually build, refine, and strengthen the policies.

It was particularly encouraging that family-style dining was virtually universal by the end of the 3 year commitment. Previous qualitative research has documented that some providers feel that family-style dining is messy and unhygienic, inconsistent with CACFP portion regulations, and problematic because children are too young to self-regulate portions [20]. The current findings suggest that it is possible to overcome these barriers by providing a clear developmental rationale and consistent messaging about the importance of family-style dining.

LCG provided substantial structural supports, including menus developed by a registered dietician nutritionist and a national food distribution account with a master shopping list for all centers. Independent centers or smaller chains may not have the resources to hire professionals to develop their menus or the buying power to influence food distributors. There are federal and state online resources to support CACFP, which can be used to access healthy child care menus and ideas (e.g., [21]) and future research could test the impact of providing these resources.

Predictably, the changes associated with "taking away" something children and families enjoyed emerged as the most difficult to implement. The reaction to the healthier celebration policy is not surprising in light of the emotional national discourse about "cupcake bans," (e.g., [22]) an issue that even resulted in state legislation in Texas to protect the right of parents to bring cupcakes to school [23]. Encouragingly, many directors wrote about the success they had involving parents in healthier celebrations by providing the written guide that had been developed for the network. It is notable that the parents were the most likely stakeholder to be upset about the celebration policy; almost none of the directors wrote about the children being upset about the absence of traditional party food. These findings also suggest that center directors should have clear plans on how to manage situations when parents are not respectful of the policy, as it is not uncommon for parents to test boundaries. Future research could examine the efficacy of various strategies for implementing this challenging policy change.

Families play a critical role in the implementation of wellness policies in child care centers and center

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directors are acutely aware of how families are feeling about the food and activity practices at all times. Directors were distressed when families were unhappy. This reaction is understandable—the families who select these child care centers are customers, and directors are conscious of the importance of meeting their needs. On the other hand, many directors felt that the fact that health and wellness are priorities for the company as whole was a selling point to prospective families. This reaction should become more common as public awareness increases about the importance of nutrition and physical activity for young children. In fact, some families expressed a desire for even healthier menus, including options to more easily accommodate vegetarian families and children with food allergies.

Although communication between child care center leaders, center staff, and families may be challenging, it is also vital for the success of any policy changes that target nutrition and physical activity. One finding in Dev and colleagues' study of communication barriers between child care providers and parents [11] was that having a system-wide policy, such as the one in Head Start, helped directors when communicating with parents. Because LCG implemented *Grow Fit* policies throughout their entire network, it was likely easier for directors to communicate about the new practices than it would have been if they were making policy changes as a single center. While some of the communication tools provided were primarily transmitting information (e.g., sharing center menus), the parent letters frequently included an element of encouragement or persuasion, hinting at the social processes involved in successful communication about the program.

Future large-scale prevention efforts should prepare the participating organizations to communicate with their staff through trainings, newsletters, and refresher courses as needed. Directors and staff should also be prepared to communicate persuasively about policy changes to families who may not understand the importance of these changes or the reasoning behind them.

Two practices focused on engaging parents did not increase over time; the first was to encourage parents to limit screen time to 1 hr a day and the other was to use informational material and activities to help parents focus on healthy eating and physical activity. The finding that these practices were not implemented as consistently or to the same extent as other policies may be because new families are joining the child care community throughout the year. This suggests that staff may need specific opportunities (e.g., new parent orientation, monthly newsletters) to communicate with parents to ensure that the targeted messages are shared with each new family.

There are limitations to the current study. First, the earliest data collection was 6 months after the commitment to PHA, so there are no compliance data prior to this time. LCG's decision to make the PHA commitment may have been an effort to formalize practices that were becoming increasingly common in their network. Second, LCG is a large, national child care company; therefore, the findings from this study may not generalize to other types of child care centers or family-based child care homes. Third, because the respondents to the survey and participants in the interview are employees of a central organization that had made these commitments to PHA, there may have been social desirability pressures to present the changes in a positive light. However, the fact that many barriers and negative comments were shared suggests that the directors were comfortable reporting the range of their experiences. Further, the documents reviewed were consistent with the interview findings. Last, to maintain director anonymity, we have limited data on respondent characteristics. Thus, we were unable to observe variation in study participation and responses by center characteristics.

Despite the limitations, this study contributes to the existing literature on implementing health-related policies in early care and education settings by sharing the experiences of the organization's leadership and hundreds of diverse views from directors and assistant directors from across the country. These findings suggest that implementing strong nutrition and physical activity policies is feasible and has the potential to lead to a meaningful shift in children's nutritional intake, time spent in front of screens, and level of physical activity while in child care. Finally, because of the large number of centers in the LCG network, their commitment has the potential to shift the social norm within the communities they serve.

Acknowledgements: We would like to thank Caitlin Simon, MPP, from Partnership for a Healthier America and the Learning Care Group staff for their assistance in data collection for this research. Preliminary findings were presented at the Robert Wood Johnson Foundation Healthy Eating Research 12th Annual Grantees Meeting in Nashville, Tennessee (April 2018).

Compliance with Ethical Standards

Funding: This study was funded by a grant from the Partnership for a Healthier America.

Authors' Contributions: Sarah L. McKee contributed to qualitative code development and coding, interpretation of findings, and manuscript writing; Kristen Cooksey-Stowers contributed to survey development, qualitative code development, interpretation of findings and manuscript writing; Rebecca St. Louis contributed to qualitative code development and coding; and Marlene B. Schwartz oversaw all phases of data collection, interpretation, and manuscript writing.

Conflicts of Interest: The authors declare that they have no conflicts of interest.

Ethical Approval: The research design and all data collection instruments were reviewed by the University of Connecticut's Institutional Review Board.

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The IRB determined that this project does not meet the definition of "human subjects research." This article does not contain any studies with animals performed by any of the authors.

Informed Consent: Because the University of Connecticut IRB determined that this project does not meet the definition of "human subjects research," informed consent was not required.

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