4-2013

Assessment of the Nutrition and Physical Activity Education Needs of Child Care Providers Across Nebraska

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ASSESSMENT OF THE NUTRITION AND PHYSICAL ACTIVITY EDUCATION NEEDS OF CHILD CARE PROVIDERS ACROSS NEBRASKA

By

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A THESIS

Presented to the Faculty of

The Graduate College at the University of Nebraska

In Partial Fulfillment of Requirements

For the Degree of Master of Science

Major: Nutrition and Health Sciences

Under the Supervision of Professor Julie Ann Albrecht

Lincoln, Nebraska

April, 2013

ASSESSMENT OF THE NUTRITION AND PHYSICAL ACTIVITY EDUCATION NEEDS OF CHILD CARE PROVIDERS ACROSS NEBRASKA

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University of Nebraska, 2013

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BACKGROUND: Studies estimate 82% of children less than six years of age in the United States are enrolled in non-parental care outside of their home (1). In Nebraska 4,106 child care providers hold licensure (2). This unique child care environment offers opportunity to address food related challenges facing young children.

OBJECTIVES: To assess the nutrition and physical activity practices provided for children, self-efficacy, and perceived needs of child care providers across Nebraska. A gap in knowledge exist for practices of child care providers in Nebraska and the impact of Child and Adult Care Food Program (CACFP), Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC), and I Am Moving, I Am Learning (IMIL) on nutrition and physical activity practices provided to children in Nebraska child care.

METHODS: Participants included a stratified random sample of 1,000 licensed child care providers across Nebraska. A mail survey was sent to the sample of providers. Data was analyzed using SPSS Version 21.

RESULTS: The preferred methods of training included use of video, computer module training, and book curriculum. Topics most preferred by providers included introducing foods to picky eaters, preventing food waste, and physical activity planning. Statistical

differences were observed between child care centers and home care participants, CACFP and non CACFP participants, NAP SACC and non NAP SACC participants, and IMIL and non IMIL Participants.

CONCLUSION AND IMPLEMENTATION: Many participants are meeting recommended guidelines. Nutrition education, nutrition policy, milk offered for children 12 to 24 months, physical activity policy, and physical activity education were found to be areas for improvement. Utilizing nutrition and physical activity programs may assist child care providers in improving nutrition and physical activity behaviors in children and families. In order to impact Nebraska children more comprehensive regulations at a state level may need to be considered. A variety of training methods should be available to best accommodate the needs of all providers in Nebraska.

ACKNOWLEDGEMENTS

I would first like to thank my Lord and Savior Jesus Christ for having bigger plans for me than I could ever imagine for myself. I am so blessed to have ended up at the University of Nebraska Lincoln. I have had the opportunity to be mentored by many amazing people and formed many friendships which will last a life time.

This project would not have been possible without the assistance of several nutrition professionals. I would like to thank my advisor Dr. Julie Albrecht for her time and patience as she led me in the right direction to finishing up my project. I would like to thank my committee members Dr. Candace Kohnke and Dr. Georgia Jones for their time and knowledge. I would like to thank Dr. Wanda Koszewski for originating my project. I would also like to thank Mindy Anderson-Knott, Lynne Brehm, Holly Dingman, Jean Ann Fischer, Audra Losey, and Natalie Sehi.

I would like to thank my incredible family. My husband Brett Delaney for always reminding to laugh and my beautiful daughters Alexis and Halle for giving me purpose and being the light of our lives. I would like to thank my mother Michele Helm and step father Randy Helm for their prayers and continual support and my father Keith Smail and step mom Mandy for encouraging me to keep reaching for my goals. I would like to thank my in laws Kevin and Jane Delaney for always being willing to help, even if it means driving four hours to help assemble 1,000 survey packets. I would also like to thank my sister Elizabeth Smail-Fluegel for being my best friend for life and an example of academic success.

DEDICATION

I would like to dedicate this project to the many children in my life whom bring me joy. My daughters Alexis and Halle Delaney, and my nephews and nieces Ryan Smail, Jaeden Delaney, Addison Smail-Fluegel, and Maci-Smail Fluegel. You all remind me daily of the importance of improving the health of future generations. I love you all and thank you for giving me purpose.

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The Impact of Child care

Children are increasingly spending more time in child care settings. Studies estimate 82% of children less than six years of age in the United States are enrolled in non-parental care outside of their home (1). In Nebraska 4,106 child care providers currently hold licensure (2). In 2011, 130,608 children ages birth through four were enrolled in child care in Nebraska; 24,106 of these children were living below poverty level (3). Nebraska currently has four different types of child care licensure (2). Family Child Care Home I facilities can have a maximum of eight children of various ages and may have two additional school aged children during non school hours with one provider. Family Child Care Home II facilities can have a maximum of 12 children and two providers. A child care center is a program licensed with at least 13 children. A licensed preschool is a program offering education and does not require a nap or meals (2).

This unique child care environment offers opportunity to address food related challenges facing young children today. Researchers suggest adequate nutrition is essential for proper brain development and the early years are a critical time for this development to occur (4, 5). Two growing issues facing children are food insecurity and obesity. In 2010, 3.9 million households with children were food insecure at some point during the year (6). Preschool obesity is also increasing with 21% of preschool children now being overweight or obese (1). Growing evidence suggest these two issues may be interrelated.

Medical professionals recommend children in care for more than eight hours per day should receive 75% of their nutrient requirements while in care (1). The current Child and Adult Care Food Program (CACFP) sets recommendations lower at half of the nutrient requirements, expecting parents to provide the other half. The CACFP offers funding for providers of low income families for an estimated 141,000 in home facilities and 51,000 center facilities nationwide (1).

Three organizations have differing age categorization for recommended daily intakes and portion size (1). The CACFP divides age categories as one to two years, three to five years, and six to 12 years. American Pediatric Association divides age categories as two to three, four to eight, and nine to twelve. The Academy of Nutrition and Dietetics divides age categories as one to three, four to eight, and nine to 13 years. Requirements of providers vary based on state regulations and if they participate in federally funded programs such as the CACFP (1).

Nebraska has a set of regulations for all licensed providers for food safety and sanitation including; cleaning, refrigeration, and storage (2). Requirements are also set for meal patterns. Children in care for over two and a half hours to four hours must receive at least one snack. If a child is in care for over four hours and up to eight hours they must receive one snack and one meal. Eight to ten hours of care requires the child to receive one meal and two snacks. A child in care over ten hours must receive two meals and two snacks. Each meal served must include all food groups with the exception of no meat at breakfast. Snacks must include components of two food groups. If requested, menus must be provided to parents. In addition to these requirements, centers are required to

meet USDA standards. Preschools are not required to serve meals but snacks must meet USDA standards and include at least one serving from a food group (2).

Child care providers have the opportunity to meet at least half of a child's daily nutrition needs, provide healthy choices, and educate children on nutrition. Currently a gap in knowledge exists for perceived nutrition education needs of child care providers in Nebraska, specifically those which are exempt from the CACFP requirements. A gap in knowledge also exist as to if Nebraska providers are utilizing and following recommendations of current nutrition and physical activity programs. To address food insecurity and obesity in the early years, child care providers must be equipped with the knowledge and skills to promote healthy behaviors and provide quality nutrition for children while in their care. For this to be accomplished, partners working together to enhance quality nutrition in the child care environment must be aware of training needs and current practices for licensed providers.

Chapter II. Literature Review

Nutrient Intake and Brain Development

Adequate nutrient intake is supportive of proper brain development in children (4, 5). Liu, Raine, Venables, Dalais, and Mednick 2003 examined the association between malnourishment at age 3 and having a lower cognitive ability at age eleven (4). Participants were 1,559 children, born between Sept 1, 1969 and August 31, 1973, in the towns of Vacoas and Quatre Bornes on the island of Mauritius, located off the coast of Africa. The children were assessed for malnutrition at age three and were categorized based on number of indicators of malnourishment present. The indicators were angular

stomatitis, Kwashiorkor, sparse thin hair, and anemia. Participants were then tested for cognitive ability by using the Boehm Test of Basic Concepts Preschool version. The children were reassessed at age eleven with the Wechsler Intelligence Scale for Children. The results indicated malnourished children had lower reading ability, total IQ, spatial IQ, and neuropsychological performance. An interesting finding was the positive relationship between indicators of malnourishment observed and increased decline of cognitive ability (4).

Weinreb, Wehler, Perloff, Scott, Hosmer, Sagor, et al., 2002 assessed the impact of hunger on children's health and mental status (5). The study participants were 180 preschool children of homeless or low income families in Worcester, Massachusetts. Hunger was assessed by using seven items from the Hunger Identification Project (7). Health outcomes were measured using questions from the National Health Interview Survey, Child Health Supplement, and Child Behavior Checklist (8). Multivariate regression analysis was used to assess data. Children in the severe hunger group were found to have increased lifetime risk of adverse health conditions with a score of 2.8, scores for moderately hungry children were 2.6, and the no hunger group scored only 1.9. Children with severe hunger had greater developmental delays at 33.3% compared with 21% for the no hunger group. Emotional problems were also greatest in the hunger group with 33.3% reported compared to 11.3 % for the no hunger group. Preschool centers were utilized by 27.3% of the severe hunger group (5).

These study results suggest proper nutrition is supportive of brain development. Early intervention is important to increase cognitive development and decrease risk of

adverse health outcomes. Child care providers have the opportunity to provide children with at least half of their daily nutrient needs. This opportunity allows child care providers to not only impact hunger but also impact obesity by changing food choice behaviors.

Consumption Patterns of Preschoolers

Several studies have examined typical consumption patterns of preschool children. Fox, Condon, Briefel, Reidy, and Deming, 2010 examined typical food consumption patterns of children ages two and three (9). Data was collected through the Feeding Infants and Toddlers Study in 2008, which collected information through a phone call. A random sample of 1,461 parents with children ages birth to three years were selected to participate. The results revealed 70% of two and three year olds consumed vegetables at least once per day. Green and yellow vegetable consumption was low, while potatoes, particularly fried potatoes, were the most consumed. Eighty-seven percent consumed fruit each day, of which 59% of fruit consumption was through juice intake. Grains were consumed by 97.7 % of children, with 39.3% of breakfast cereals and only 9.2% of breads being whole grain. Sweets were consumed by 85.8% of children with 46.1% consuming sweetened beverages (9).

This study emphasizes the importance of education of proper diet for caregivers of preschool children. With only 70% consuming vegetables at least once per day, it is unlikely many preschoolers are receiving recommended amounts and a variety of vegetables. Over half of the children were receiving fruit intake from juice. The amount of sweets and sugar sweetened beverages were also higher than desired.

Obesity and Child Care

Some studies suggest children in child care may be more likely to become obese. Bejamin, Rifas-Shiman, Taveras, Haines, Finkelstein, Kleinman et al., 2009 examined the relationship between attending child care during time of infancy, which was considered birth to three months, with the development of fat at one and three years of age (10). Participants were recruited during prenatal visits in Massachusetts. At the three year follow up, data was available for 933 infants. Information was obtained through questioning of the mothers about child care practices, birth data on gestational age and weight, breastfeeding status, sleep duration, television use, and physical weight for length BMI scores. Data analysis was done through multiple linear regression models. Results reported 17% went to a child care center, 27% attended in home care outside their own home, and 21% were cared for in their own home by a non parent. Weight for length scores increased with the amount of hours spent in care at both one and three years of age (10).

Similar results were reported by Maher, Li, Carter, and Johnson, 2008 who examined the relationship between child care participation before kindergarten and resulting obesity during kindergarten (11). Data were used from the Early Childhood Longitudinal Study-Kindergarten (ECLS) Cohort which uses data from children entering kindergarten in 1998. The data set included information for 15, 962 kindergartners. The recorded heights and weights were analyzed with Epi Info to determine BMI for age percentiles and z scores. Demographics and child care use data was also taken from the ECLS data. Descriptive statistics and multivariate logistics models were used to analyze

data. Results demonstrated children not in child care were the least likely to be obese. Children in primary care facilities were more likely to be obese than non child care participants but less likely to be obese than children in home setting facilities (11).

Gubbels, Kremers, Sagleu, Degnelie, deVries, van Buuren, et al., 2010 studied the relationship of child care use and overweight in children two years of age and younger (12). Data were obtained from the Child, Parent and Health: Lifestyle and Genetic Constitution Study. Survey results were considered for 2,396 children born to mothers recruited to participate in the study at 34 weeks gestation. Surveys were completed at seven months, one year, and two years of age. Data obtained were hours of outside care, height, weight, and parental demographics. Regression analysis was conducted using SPPS. Child care was used for 628 children at an average of 20 hours per week. Child care use was related to BMI increase at age two but was not correlated with amount of time spent in child care. The risk of being overweight at one year of age increased for those attending child care with BMI z-scores increasing while children whom did not attend child care showed a decrease in BMI z-score (12).

Obesity is a growing issue in the United States. Early intervention can impact behavioral choices. It is troublesome that child care seems to be positively associated with obesity risk. The primary factors contributing to preschool obesity are quality of diet and inactivity (1). Solutions to correcting these factors must be identified and assessed at each child care entity.

Relationship between Food Insecurity and Obesity

According to research conducted by Dubois, Farmer, Girard, and Porcherie, 2006, food insufficiency is related to overweight (13). The study design was a population based cohort of 2103 children in Canada. Data were analyzed using multivariate analysis. Researchers showed mean BMI increased for food insufficient children. Adjustments were made using the Cole criteria and CDC growth charts. With adjustments, the Cole Criteria showed the odds of obesity tripled for food insecure children while the CDC growth charts showed the odds doubled (13).

Casey, Simpson, Gossett, Bogle, Champagne, Connell et al. 2006 also examined the relationship of food insecurity and overweight (14). Data were collected from the National Health and Nutrition Examination Survey, which took place between 1999 to 2002, and randomly selected participants. Measurements were collected for BMI as well as food insecurity using the US Food Security Scale. Results indicate children from food insecure households were more likely to be at risk for being overweight (14).

Obesity and food security may be related. Inability to access healthy foods may be a contributing factor. Child care is an environment in which we have ability to affect healthy food choices. Requiring quality nutrition for meals received in child care facilities can enhance a child's diet and has potential to decrease obesity.

Nutrient Intake of Children in Child Care

To assess dietary intake, Gubbels, Kremers, Stafleu, Dagnelie, de Vries, and Thijs, 2010 examined nine child care settings in the Netherlands over three meals (15). Five children ages two and three years old were randomly selected during each meal time

in each setting. Meals were observed over two days in a non consecutive week; 135 observations were completed. Two observers trained in protocol recorded food consumed and interactions. Data were analyzed using Stitching NEVO 2006. General consumption patterns were fruit in the morning, sandwich during lunch time, and snacks in the afternoon. More than half of the children were encouraged to consume more than they wanted. The observers noted children ate more when the staff ate with them. The total mean energy intake773 kcal was on the upper range of recommended values of 600 to 800 kcal during child care hours. The use of taking food away as punishment was not observed more than twice per meal but was observed more with girls than boys. Girls were also less likely to be encouraged to try new foods (15).

Erinosho, Dixon, Young, Brotman, and Hayman, 2011 compared the nutritional practices and compliance of 40 child care centers in New York City with current recommendations (16). Data were collected in several ways including The Directors survey, The Building Mealtime Environment and Relationship Inventory, observations, and collection of five daily menus. Results for meal preparation showed 87.5 % of centers had meals prepared on site. Cooks were employed at 85% of centers. For menu planning, 92% of menus were based on guidelines from the Child and Adult Care Food Program requirements. Most sites were able to accommodate special needs with 92.5% providing accommodation for physician recommended needs and 97.5% reporting accommodations for religious or cultural beliefs. Only 2% of the children observed consumed at least half of the recommendations for all five food groups combined. More

than 97% consumed half of their daily recommendation of protein while at least half consumed half of their daily recommendations for carbohydrates (16).

Ball, Benjamin, and Ward 2008 examined if children ages two to five met MyPyramid nutrient recommendations while in child care (17). The study took place in 20 North Carolina facilities and included 117 children. Data were obtained through observations over two days. The amount of foods from each food group was analyzed and compared with recommendations. Researchers found children consumed less than recommended amounts of grains, fruit, vegetables, and the protein group (17).

Padget and Briley, 2005 compared dietary intake with the Food Guide Pyramid recommendations in central Texas including nine child care centers (18). Three day food records were recorded for a total of 50 children. Intake during child care was recorded by an observer while intake at home was recorded by a parent. Diet recalls were analyzed with Food Works 2.0 and descriptive statistics analyzed with SPSS. Researchers reported over half of three year old consumed the recommendations for grains, vegetables, and dairy. Dairy recommendations were met by 64% of four and five year olds but less than half of the requirements were met for any other group in this age range (18).

These studies suggest dietary regulations are not being met. Children continue to be served less than recommended intake of fruits, vegetables, and grains. To address the noncompliance of dietary recommendations, it is important to determine why providers are not able to comply and what knowledge and tools they need to increase compliance.

U.S. State Regulations

Benjamin, Cradock, Walker, Silining, and Gillman, 2009 compared varying state regulations for child care facilities through document review (19). Items compared were water availability, sugar sweetened beverage consumption, limitation on foods of low nutritional value, if children are forced to eat, if food is used as a reward, support for breastfeeding, screen time, and physical activity. For water consumption, 41 states had regulations for facilities while only 34 states had regulations for in home care. Sugar sweetened beverages were restricted in seven states. Nine states limited low nutritional foods. Thirty-two states had a policy restricting forcing children to eat and10 states had a policy restricting using food as a reward. Nine states had regulations supporting breastfeeding. Seventeen states regulated screen time in facilities while 15 states regulated in home settings. According to the data obtained from this study, Nebraska did not have any of the eight regulations in place (19).

Another study conducted by Benjamin, Taveras, Cradock, Walker, Slining, and Gilman, 2009 compared state regulations but specifically for infant feeding practices through document review (20). Eleven standards were compared. The first standard was infants being fed according to a feeding plan from parent or physician. Thirty states met this standard for center based care while twenty states met this standard for home based care. The second standard was support for breastfeeding in which 11 centers and 10 in home facilities had regulations. The third regulation was restricting solid food until six months of age. For this regulation, only two states had regulations for centers and no state had a regulation for in home care. The regulation of feeding infants on demand showed

18 states regulated centers while 12 regulated home care. Only one state had a regulation for feedings come from a consistent care giver. The regulation on infants being held while feeding showed 46 states had a regulation for centers while 37 had a regulation for home care. For infants not sleeping with a bottle 19 states had child care center regulations while 14 had regulations for home care. Only one state had a regulation for centers on not feeding more than one infant at a time. Five states had regulation for centers and six states had regulations for in home care on no cow's milk given before one year of age. Whole cows milk given from 12 months to 24 months was a regulation for seven states concerning centers and six states for in home. When considering giving solids in a bottle eight states had regulations for centers and four states for in home care. For center based care, Nebraska had regulations for two areas including feeding according to parent or physician plan and holding infants while feeding. Regulations for in home care in Nebraska were only on holding infants while feeding (20).

Researchers demonstrate regulations show much variation by state. The studies were unclear on regulations impact on obesity or child health care issues. It was also unclear how compliance was measured regarding the regulations. Overall, home care appears to be less regulated than center based care.

Child Care Centers Versus in Home Care Facilities

Kim, Shim, Wiley, Kim, and Mcbride, 2012 compared obesity prevention in 94 child care centers and 88 home care facilities in central Illinois (21). The assessment was completed through a survey. Analysis was conducted using t-test and chi square analysis. Results showed child care centers were more likely to receive nutrition training (81.9%)

compared to in home care facilities (58.6%) as well as physical activity training (66.7%) compared to (43%). Although both types of facilities reported having less influence on obesity prevention than parents, home care facilities more often reported feeling the ability to influence children's health (21).

Programs Common to Child Care Providers

The Child and Adult Care Food Program (CACFP) is a government program under the United States Department of Agriculture which provides reimbursement for healthy meals served to eligible participants (22). Child care centers which are eligible include nonprofit facilities and for-profit facilities with 25 percent of children whom qualify for free or reduced price meals. In home child care centers must sign up with a sponsoring agency to receive CACFP funds. To be reimbursed, meal pattern guidelines must be met. Breakfast must contain fluid milk, fruit or vegetable, and a grain. Lunch must contain fluid milk, two fruits or vegetables, a grain, and a meat. Snacks must include any two of the previously mentioned groups (22).

Bruening, Gilbride, Passannante, and McClowry, 1999 examined health outcomes between children in New York participating in CACFP programs and those which brought meals from home (23). Menu analysis was conducted for ten days while at the child care center. Dietetics students observed and recorded types and amounts of foods consumed. The dietary observations were analyzed using Food Processor Nutrient Analysis software version 3.0. Children at the CACFP center consumed significantly more protein, milk, and vegetables. Children in the CACFP consumed less fats and sweets (23).

The Nutrition and Physical Activity Self-Assessment for Child Care (NAP SACC) program was originally piloted in North Carolina in 2003 (24). The program highlights 15 key practices of nutrition and physical activity. Providers complete the self-assessment tool, determine key areas to improve, work with a consultant to improve key areas, and reevaluate through a second completion of the assessment tool. Goals of the program are to provide nutritious foods, increase amount and quality of physical activity, improve child staff interactions, and improve nutrition and physical activity policy (24).

Ward, Benjamin, Ammerman, Ball, Neelon, and Bangdiwala, 2008 examined differences between child care centers in North Carolina receiving the NAP SACC intervention (n=56) and child care centers in a control group (n=26) (25). The NAP SCC intervention was implemented over a six month period in 2005. Results for score improvement from baseline to follow up were non significant (p=0.06), however the intervention group demonstrated an 11% improvement from baseline scores to follow up. When individual items were analyzed NAP SACC participants scored significantly higher (p=0.01) for nutrition and physical activity (p=0.05) scores (25).

The I Am Moving, I Am Learning (IMIL) program is aimed at obesity prevention in Head Start programs (26). The program began as a pilot at 17 facilities in Virginia and West Virginia in 2005 and went national in 2007. This program has three main goals which include 1) increase the amount of time spent in moderate to vigorous physical activity, 2) improve quality of structured movements facilitated by providers, and 3) improve healthy nutrition choices for children. The intervention occurs through train the trainer workshops (26).

Previous Assessment of Child Care Providers

Enke, Briley, Curtis, Greninger, and Staskel 2006 created a questionnaire used in Iowa and Texas to specifically identify food safety practices of child care providers (27). To create a sample, data was obtained on child care centers from the Department of Human Services in each state. Data were entered into a spread sheet and each center was given a code. Phone contact was made with 94 centers in Iowa and 194 in Texas to notify centers of selection for the study. Consent to participate in the study was obtained from 74 centers in Iowa and 112 centers in Texas. After mailing of the questionnaire, follow up phone contact was made 14 days later. Centers received a packet with a cover letter, questionnaire, and stamped envelope. After completion, a thank you packet was sent with educational materials and a signed letter. The study had an overall response rate of 63%. A notable finding was food service workshops were offered by less than one third of centers. Only 16% of employees were trained in food service safety. Barriers to training reported were lack of time, cost, and transportation. However, at least 84% had access to the internet (27).

An assessment was conducted by Clark, Anderson, Adams, and Baker, 2007 to determine needs of child care providers in Colorado for breastfeeding practices (28). The survey tool was reviewed by experts and tested by a separate sub group with a test re-test approach. Surveys were mailed to 1,385 licensed centers. Incentives to complete the survey were a fifty dollar gift card drawing. Findings suggested a need for increased knowledge, desire for updated information, and a need for English and Spanish materials. The majority also wanted information available through web content (28).

Falbe, Kenney, Kathryn, Henderson, Marlene, and Schwartz, 2011 created a tool to assess quality of written policies (29). A letter was sent to CACFP participating centers in Connecticut requesting policy documents. Documents were received from 210 centers. The tool was created with 65 questions addressing nutrition education, nutrition standards, promotion of healthy eating, physical activity, and communication and evaluation. The tool was reviewed by registered dietitians and child care providers, Cronbach's alpha was used to assess consistency, and validity was determined by comparison of Head Start versus non Head Start centers. The raters gave a numerical rating from zero to two for each criterion. Results showed Head Start centers scored higher in all domains (29).

Kaiser, Kaiser, and Likness, 2010 created a needs assessment to address care for children with special needs in Nebraska (30). The sampling method was systematic stratified sampling using five regions across Nebraska as well as provider type. The survey delivery method was mail with a response rate of 35%. Data were analyzed using SPSS to determine frequency and percentage of answers. A majority of providers (80%) reported being aware of special education resources in the community. The most common response for difficulties encountered for caring for children with special needs was no difficulties (35%), closely followed by inadequate training (30%), and fear of meeting needs (29%). Problems participants reported for children in care were mostly learning difficulty 57% and behavior problems 45 % (30).

Much can be learned from the methodology of previous assessments. In the Texas and Iowa study, they found 84% of participants had internet access (27). This suggests

use of online surveying may be beneficial for use in the child care setting. Nebraska currently does not have a database of electronic addresses for providers as this is not a required field for licensure. The Colorado study used gift cards as incentives and also found most providers requested web based content (28). The Nebraska survey provides methodology for conducting a sampling for mail assessment (30).

Chapter III. METHODS

Purpose

The purpose of this study is to assess the nutrition and physical activity practices provided for children, self-efficacy, and perceived needs of child care providers across Nebraska. A gap in knowledge exist for practices of child care providers in Nebraska, specifically providers of home based care. Several providers participate in nutrition and physical activity programs including the "Child and Adult Care Food Program" (CACFP), "Nutrition and Physical Activity Self-Assessment for Child-Care" (NAP SACC), and "I Am Moving, I Am Learning" (IMIL). A gap in knowledge exists on impact of these programs on nutrition and physical activity practices provided for children while in the child care setting. The results of this research will be used to generate future nutrition and physical activity education programs for the child care setting.

Research Questions

Research questions will address the differences between practices for varying groups. Research questions include:

1. Is there a statistically significant difference between nutrition and physical activity practices provided for children and self-efficacy for providers of center versus in home based care?
2. Is there a statistically significant difference between nutrition and physical activity practices provided for children and self-efficacy of providers participating in the "CACFP" program and those whom do not?
3. Is there a statistically significant difference between nutrition and physical activity practices provided for children and self-efficacy of providers participating in the "IMIL" program and those whom do not?
4. Is there a statistically significant difference between nutrition and physical activity practices provided for children and self-efficacy of providers participating in the "NAP SACC" program and those whom do not?
5. What types of educational equipment are available to child care providers in Nebraska?
6. What are the preferred training methods of child care providers in Nebraska?
7. What topics are child care provider in Nebraska interested in receiving more information on?

Hypothesis

1. Higher scores will be achieved for nutrition, physical activity, and self-efficacy scores for participants in child care centers versus home based care.

2. Providers participating in education programs will achieve higher scores for nutrition, physical activity, and self-efficacy than those who did not participate in education programs.
3. The majority of child care providers will have access to TV, DVD, computers, and internet.
4. The majority of child care providers will prefer training methods they can do on their own time including videos, books, and computer modules.
5. Child care providers will be most interested in learning about menu planning preparation and physical activity planning.

Subjects

A roster of child care providers was obtained from the Nebraska Department of Health and Human Services. This roster included all licensed facilities across Nebraska, both center and home based. The roster included 4,092 providers. Since preschools are not required to serve food, this group was excluded from the study leaving a potential sample of 3,087.

The original intent was to send an electronic survey to all licensed providers. Since a list of electronic mail addresses did not exist for child care providers in Nebraska, a mail survey was sent to 1,000 providers.

To achieve a sample of 1,000 providers, a random stratified sample was drawn. A random stratified sample was chosen to ensure representation of each provider type as well as geographical region. The Bureau of Sociological Research was consulted to draw the sample. The three licensure types included in the sample were family child care home

I, family child care home II, and child care centers. For the purpose of this study Nebraska was separated into seven regions by county using the guidelines from the Nebraska Department of Education Early Learning Connection Partnership (See Appendix 1).

1) North region included the counties of: Antelope, Boyd, Brown, Cedar, Cherry, Dakota, Dixon, Holt, Keya, Knox, Madison, Paha, Pierce, Rock, Stanton, Thurston, and Wayne
2) Platte Valley region included the counties of: Boone, Burt, Butler, Colfax, Cuming, Dodge, Merrick, Nance, Platte, Polk, and Saunders
3) Omaha area region included the counties of: Cass, Douglas, Sarpy, and Washington
4) Southeast region included the counties of: Fillmore, Gage, Jefferson, Johnson, Lancaster, Nemaha, Otoe, Pawnee, Richardson, Saline, Seward, Thayer, and York
5) Central Region included the counties of: Adams, Blaine, Buffalo, Clay, Custer, Dawson, Franklin, Fumas, Garfield, Gosper, Greeley, Hamilton, Harlan, Howard, Kearney, Loup, Nuckolls, Phelps, Sherman, Valley, Webster, and Wheeler
6) High Plains region included the counties of: Arthur, Chase, Dundy, Frontier, Grant, Hayes, Hitchcock, Hooker, Keith, Lincoln, Logan, McPherson, Red Willow, and Thomas

7) Panhandle region included the counties of: Banner, Box Butte, Cheyenne, Dawes, Deuel, Garden, Kimball, Morrill, Sheridan, and Sioux

Data Collection Instrument

The needs assessment survey was created by compilation of questions which addressed the main research questions. The survey was divided into sections which included: facility information, nutrition education, meals and snacks, beverages, meal and food preparation, feeding practices, infant feeding, and physical activity. Additional questions addressed self-efficacy by expressing comfort level with nutrition and physical activity related activities, equipment available, topics which participants would be interested in learning, and methods of training preferred. Providers were also asked preference on receiving future surveys through mail or electronic mail. The needs assessment survey was reviewed by five nutrition professionals familiar with the child care setting. This research has been approved by the University of Nebraska Lincoln International Review Board (See Appendix 2).

Data Collection

Data collection occurred through a mailed needs assessment survey. The participants received a packet which contained a letter of informed consent, the needs assessment survey, and a pre-paid postage return envelope. The packets were assembled and mailed to each chosen participant from the sample. Mail surveys were sent August 2012 and asked to be returned through October 2012 (See Appendix 3 and 4).

Providers who returned the mail survey were randomly entered to win one of five Childcraft School Specialty gift cards in the amount of $50 dollars. As the surveys were

received the provided contact information was placed into an excel file. Providers were only asked to provide a first name and preferred contact of either phone or electronic mail to keep providers responses confidential. Random numbers were generated for each entry. When the deadline for returning surveys ended, the five smallest random numbers were sorted to select the winners.

Data Analysis

Survey data was coded and entered in Microsoft Excel 2010. The data was then analyzed using SPSS version 21. Data analysis was conducted in collaboration with the University of Nebraska NEAR center. Crohnbach's alpha was used to assess reliability of the survey. Chi square analysis was used to compare groups and answer research questions. Descriptive statistics were used to describe the survey participants.

Chapter IV. RESULTS

Demographics

The number of surveys completed and returned equaled 274 and Table 1 lists the demographic characteristics of the participants. One survey was returned as undeliverable. The final return rate was 27.4% (274/999 surveys). Due to budgetary restrictions, this response rate was achieved without any follow up. The number of returned surveys was higher for in home care (n=207, 75.5%) than center based care (n=67, 24.5%). Based on reported enrollment of each age group reported by participants the return sample represents 6,334 Nebraska children, 2,864 of these children being less than one to three years old and 3, 470 being over three years old. Participants completing the survey have been providing care for a range of less than one year to 51 years, with the

most common time frame being between one to nine years (n=87, 33.6%). The age range of participants ranged from 20 to 83 years old, with the most common age being 40 to 49 (n=68, 28.7%). Languages other than English spoken included Spanish (n=20, 6.3%), Chinese (n=1, 0.3%), Nuer (n=1, 0.3%), and American Sign (n=5, 1.7%).

Surveys were returned from each of the seven geographic regions of Nebraska. Distribution from each region is as follows in descending order of frequency: Omaha area (n=79, 29.2%), Southeast (n=66, 24.4%), Central (n=46, 17%), North (n=32, 11.8%), Platte Valley (n=30, 11.1%), High Plains (n=12, 4.4%), and Panhandle (n=6, 2.2%).

Table 1. Demographics of Survey Participants	**(n)**	**(%)**
Which best describes your facility? (N=274)		
In Home Care	207	75.5
Child Care Center	67	24.5
What region is facility located in? (N=271)		
North	32	11.8
Platte Valley	30	11.1
Omaha Area	79	29.2
Southeast	66	24.4
Central	46	17.0
High Plains	12	4.4
Panhandle	6	2.2
What languages are spoken at your facility? (N=274)		
English	274	100.0
Spanish	20	6.3
Chinese	1	0.3
Nuer	1	0.3
American Sign	5	1.7
Age of primary provider? (N=237)		
20-29	26	11
30-39	55	23.2
40-49	68	28.7
50-59	51	21.5
60-69	33	13.9
70-79	3	1.3
80-89	1	0.4
How long have you been providing care? (N=259)		
<1	10	3.9
1-9	87	33.6

10-19	64	24.7
20-29	57	22.0
30-39	35	13.5
40-49	5	1.9
50-59	1	0.4

Program Participation

Participants were asked to reveal participation in three different programs common to Nebraska child care providers (Table 2). The three programs included CACFP, NAP SACC, and IMIL. The majority of participants were involved in CACFP (n=234, 85.6%). The other programs had less participation among the sample NAP SACC (n=41, 15.2%) and IMIL (n=54, 20%).

Table 2. Program Participation in CACFP, NAP SACC, and IMIL	**(n)**	**(%)**
Do you participate in the "Child and Adult Care Food Program"? (N=273)		
Yes	234	85.6
No	39	14.3
Do you participate in the "Nutrition and Physical Activity Self-Assessment for Child-Care" program? (N=270)	41	15.2
Yes	229	84.8
No		
Do you participate in the "I Am Moving, I Am Learning" program? (N=270)		
Yes	54	20.0
No	216	80.0

Instrument Reliability

To determine instrument reliability, Cronbach's alpha was calculated for the areas of nutrition, physical activity, and confidence scores. Scores for each section was as follows: nutrition 0.801, physical activity 0.605, and confidence scores 0.813. Factors which may lower a Cronbach's alpha scores include a homogenous sample and limited question quantity. Our group contains all child care providers which may be expected to show limited variability in answers.

Nutrition Education

Nutrition education frequency was obtained based on education provided to providers, staff, parents, and children (Table 3). Best practice guidelines encourage providers and parents to receive training two times per year or more (24). The best practice recommendations for providers were met by over half of participants (n=149, 55%). The least common response for provider training was never (n=15, 5.5%). Best practice guidelines for education two times per year or more for parents were met less (n=88, 33.1%) than for providers (n=149, 55%). Many participants never offered nutrition education to parents (n=85, 32.1%), the least selected response was less than one time per year (n=37, 14%). Best practice guidelines for children suggest nutrition education should be offered through standardized curriculum one time per week or more (23). Children were most likely to receive nutrition education one time per month (n=83, 30.7%) closely followed by one time per week or more (n=82, 30.4%), some children never receive nutrition education (n=54, 20%).

Table 3. Participant responses to Nutrition Education Training	**(n)**	**(%)**
How often are training opportunities on nutrition provided for you or your staff? (N=271)		
Never	15	5.5
Less than 1 time per year	28	10.3
1 time per year	79	29.2
2 times per year or more	149	55.0
How often is nutrition education provided to parents? (N=265)		
Never	85	32.1
Less than 1 time per year	37	14.0
1 time per year	55	20.8
2 times per year or more	88	33.1
How often is nutrition education provided to children through standardized curriculum? (N=270)		
Never	54	20.0
1 time per year or less	51	18.9
1 time per month	83	30.7
1 time per week or more	82	30.4

Significant differences were observed for two of the three areas of nutrition education reported (Tables 4-7). In the area of nutrition education for staff, a significant difference was observed between home versus center care (p=0.000) (Table 4). A significant difference was observed for the area of nutrition education for staff for CACFP versus non CACFP (p=0.001) (Table 5). Home child care participants more often met best practice guidelines of providing nutrition education for staff twice per year (61.27%) when compared to child care centers (38.81%). CACFP participants were more likely (60.34 %) to provide nutrition education to staff twice per year when compared to non CACFP participants (28.95%). A difference was observed for nutrition education provided to parents between CACFP and non CACFP participants (p=0.027) (Table 5). Each group had similar scores for the best practice guideline of twice per year CACFP (34.8%) and non CAFP (28.95%), however non CACFP participants were more likely to never provide training for parents (50.63%) when compared to CACFP participants (29.07%). No significant difference was observed between groups for education provided to children through a standardized curriculum. No significant differences were observed for nutrition education training between participants of NAP SACC and non NAP SACC (Table 6) or IMIL and non IMIL (Table 7).

Table 4: Comparison of Nutrition Education Training in Child Care Center versus Home Care

	Child Care%	**Home Care%**	**X2**	**p < value**
How often are training opportunities on nutrition provided for you or your staff?				
(N=271)	(n=67)	(n=204)	18.202	0.000*
Never	7.46	4.41		
Less than 1 time per year	22.40	6.37		
1 time per year	31.34	27.94		
2 times per year or more	38.81	61.27		
How often is nutrition education provided to parents?				
(N=266)	(n=66)	(n=200)	2.427	0.489

Never	36.36	31.50		
Less than 1 time per year	12.12	14.00		
1 time per year	24.24	18.50		
2 times per year or more	27.27	36.00		
How often is nutrition education provided to children through standardized curriculum?				
(N=270)	(n=67)	(n=203)	6.383	0.094
Never	10.45	23.15		
1 time per year or less	19.40	18.72		
1 time per month	38.81	27.09		
1 time per week or more	31.34	31.03		
***= Significant at p < 0.05**				

Table 5: Comparison of Nutrition Education Training in CACFP and Non CACFP Participants

	CACFP %	**Non %**	**X2**	**p < value**
How often are training opportunities on nutrition provided for you or your staff?				
(N=270)	(n=232)	(n=38)	0.117	0.001*
Never	3.88	13.16		
Less than 1 time per year	8.62	21.05		
1 time per year	27.16	36.84		
2 times per year or more	60.34	28.95		
How often is nutrition education provided to parents?				
(N=265)	(n=228)	(n=38)	9.194	0.027*
Never	29.07	50.63		
Less than 1 time per year	14.98	5.25		
1 time per year	21.15	13.16		
2 times per year or more	34.80	28.95		
How often is nutrition education provided to children through standardized curriculum?				
(N=269)	(n=231)	(n=38)	3.078	0.380
Never	18.18	28.95		
1 time per year or less	19.91	13.16		
1 time per month	29.87	31.58		
1 time per week or more	32.03	26.32		
***= Significant at p < 0.05**				

Table 6: Comparison of Nutrition Education Training in NAP SACC versus Non NAP SACC

	NAP SACC %	**Non %**	**X2**	**p < value**
How often are training opportunities on nutrition provided for you or your staff?				
(N=267)	(n=41)	(n=226)	3.518	0.318
Never	0.00	6.19		
Less than 1 time per year	7.32	11.06		
1 time per year	29.27	28.32		
2 times per year or more	63.41	54.42		

How often is nutrition education provided to parents?				
(N=264)	(n=41)	(n=223)	1.965	0.580
Never	36.59	32.29		
Less than 1 time per year	14.63	13.00		
1 time per year	24.39	19.28		
2 times per year or more	24.39	35.43		
How often is nutrition education provided to children through standardized curriculum?				
(N=267)	(n=41)	(n=227)	2.347	0.504
Never	17.07	20.70		
1 time per year or less	26.83	17.62		
1 time per month	29.27	29.96		
1 time per week or more	26.83	31.72		
***= Significant at p < 0.05**				

Table 7: Comparison of Nutrition Education Training in IMIL versus Non IMIL Participants

	IMIL %	**Non %**	**X2**	**p < value**
How often are training opportunities on nutrition provided for you or your staff? (N=267)	(n=54)	(n=213)	4.381	0.223
Never	3.70	5.63		
Less than 1 time per year	3.70	12.21		
1 time per year	37.19	26.76		
2 times per year or more	55.41	55.40		
How often is nutrition education provided to parents? (N=264)	(n=54)	(n=210)	1.520	0.628
Never	25.93	34.76		
Less than 1 time per year	14.81	12.86		
1 time per year	22.22	19.52		
2 times per year or more	37.04	32.86		
How often is nutrition education provided to children through standardized curriculum? (N=268)	(n=54)	(n=214)	4.547	0.208
Never	14.81	21.50		
1 time per year or less	24.07	17.76		
1 time per month	22.22	31.78		
1 time per week or more	38.89	28.97		
***= Significant at p < 0 .05**				

Meal patterns

Participants were asked questions regarding frequency of serving specific food items including whole grains, breaded meat, beans or lean meat, salty or sweet food, and fried potatoes (Table 8). Best practice guidelines of serving whole grains twice per day were met by 32.58% of participants (n=87) (24). Whole grains were most often served once per day (n=112, 41.95%). The least selected response for frequency of serving

whole grains was never (n=3, 1.12%). Best practice guidelines suggest breaded meats should be served once per week or never (24). Participants most commonly selected serving breaded meats once per week (n=154, 56.62%). The least selected responses for serving breaded meats were one time per day and two or more times per day which were each selected 11 times (n=4.04%). Participants most often reported serving beans and lean meats once per day (n=128, 47.06%) meeting the best practice guideline (24). Never serving beans or lean meat was the least common response (n=9, 3.31%). It is possible responses may have been changed by grouping beans and lean meats together. Participants may have been confused on which type of beans were being asked about and what was meant by lean meats. Best practice guidelines suggest salty or sweet foods should be offered once per week or never (24). The most commonly selected response for salty or sweet foods was once a week (n=139, 51.10%). Never offering salty or sweet foods was reported by 5.51% participants (n=15). The least commonly selected response was more than twice per day (n=10, 3.68%). Best practice guidelines suggest fried potatoes should be offered one time per week or never (23). Pre-Fried potatoes (French fries, tater tots, etc.) were most often served one time per week (n=130, 47.97%). Never was selected by 14.08% (n=38) of provider. The least selected response for serving fried potatoes was once per day (n=3, 1.11%), closely followed by two times per day (n=4, 1.48%).

Table 8. Meal and Snack Patterns or Participants	**(n)**	**(%)**
How often are whole grains offered? (N=267)		
Never	3	1.12
Less than 1 time per week	12	4.49
1 time per week	53	19.85
Once a day	112	41.95
2 or more times per day	87	32.58

How often are breaded meats offered? (N=272)		
Never	24	8.82
Less than 1 time per week	72	26.47
1 time per week	154	56.62
Once a day	11	4.04
2 or more times per day	11	4.04
How often are beans and lean meats offered? (N=272)		
Never	9	3.31
Less than 1 time per week	14	5.15
1 time per week	94	34.56
Once a day	128	47.06
2 or more times per day	27	9.93
How often are salty or sweet snacks offered? (N=272)		
Never	15	5.51
Less than 1 time per week	53	19.49
1 time per week	139	51.10
Once a day	55	20.22
2 or more times per day	10	3.68
How often are pre-fried potatoes offered? (N=271)		
Never	38	14.02
Less than 1 time per week	96	35.42
1 time per week	130	47.97
Once a day	3	1.11
2 or more times per day	4	1.48

Three of the four groups compared showed significant differences for meal and snack scores (Tables 9-12). Significant differences were found between child care centers and home care participants for difference in the areas of whole grains (p=0.000), breaded meats (p=0.008), beans and leans meat (p=0.00), and salty or sweet snacks served (p=0.020) (Table 9). Best practice guidelines recommend serving whole grains two times per day (24). Child care centers more often met this guideline (34.65%) when compared to in home care participants (26.15%). Child care centers were also more likely to serve whole grains once per day (46.5%) compared to in home care (27.64%). Best practice guidelines suggest breaded meats should be served once per week or never (24). Similar responses were observed for the best practice guideline of once per week for child care

center participants (56.06%) and home care participants (56.89%). Child care centers more often reported never serving breaded meats (18.18%) compared to home care participants (5.83%). The guideline of serving lean meats once per day was more often met by home care participants (49.51%) compared with child care centers (3.03%), however when observing responses for serving beans and lean meats two or more times per day values were similar for child care centers (12.12%) and home care participants (13.11%). CACFP participants compared to non CACFP participants showed significant differences for whole grains (p=0.001), breaded meats (p=0.007), beans and lean meats (p=0.001), and pre-fried potatoes (p=0.000) (Table 10). Whole grain best practice guidelines were reported at similar values for CACFP (32.17%) and non CACFP (36.11%). When looking at participants which serve whole grain one time per day CACFP participants had higher values (46.52%) compared to non CACFP participants (13.9%). CACFP participants were also more likely to serve beans and lean meats at the recommendation of once per day (49.57%) compared to non CACFP participants (32.43%). CACFP participants also more often reported serving beans and lean meats two or more times per day (11.11%) compared to non CACFP (2.70%). CACFP participants reported never serving beans or lean meats less (1.71%) when compared to non CACFP participants (13.51%). Non CACFP participants were more likely to meet recommendations for breaded meats and pre fried potatoes. Non CACFP participants reported never providing breaded meats more often (21.62%) when compared to CACFP participants (6.84%), however when observing values for less than once a week CACFP participants reported this response more often (28.63%) compared to (13.51%) non

CACFP participants. Non CACFP participants reported never serving pre fried potatoes more often (38.84%) compared to non CACFP participants (10.26%). The only difference shown between NAP SACC and non NAP SACC participants for meals and snacks was for offering of breaded meats (p=0.012) (Table 11). NAP SACC participants were more likely to never serve breaded meats (0%) compared to non NAP SACC participants (10.13%), however when observing values for serving breaded meats two or more times per day non NAP SACC participants scored better (2.64%) compared to (12.20%) for NAP SACC participants. No significant differences were observed for IMIL participants versus non IMIL participants (Table 12). A limitation exist for the meal and snack section due to the fact the researchers are unaware of open operating hours of each provider which may impact the responses to the questions in this section.

Table 9: Comparison of Meal and Snack Questions between Child Care Center and Home Care

	Child Care %	Home Care %	X2	p < value
How often are whole grains offered?				
(N=267)	(n=65)	(n=202)	20.117	0.000*
Never	0.99	1.54		
Less than 1 time per week	2.97	9.23		
1 time per week	14.85	35.38		
Once a day	46.53	27.69		
2 or more times per day	34.65	26.15		
How often are breaded meats offered?				
(N=272)	(n=66)	(n=206)	13.720	0.008*
Never	18.18	5.83		
Less than 1 time per week	24.24	27.18		
1 time per week	56.06	56.80		
Once a day	1.52	4.85		
2 or more times per day	0.00	5.34		

How often are beans and lean meats offered?				
(N=272)	(n=66)	(n=206)	33.944	0.000*
Never	0.00	0.49		
Less than 1 time per week	39.39	5.83		
1 time per week	45.45	31.07		
Once a day	3.03	49.51		
2 or more times per day	12.12	13.11		
How often are salty or sweet snacks offered?				
(N=272)	(n=66)	(n=206)	11.675	0.020*
Never	12.12	3.40		
Less than 1 time per week	19.70	19.42		
1 time per week	43.94	53.40		
Once a day	24.24	18.93		
2 or more times per day	0.00	4.85		
How often are pre-fried potatoes offered?				
(N=271)	(n=66)	(n=205)	4.833	0.305
Never	19.70	12.20		
Less than 1 time per week	31.82	36.59		
1 time per week	45.45	48.78		
Once a day	0.00	1.46		
2 or more times per day	3.03	0.98		

***= Significant at p < 0.05**

Table 10: Comparison of Meal and Snack Questions between CACFP and Non CACFP Participants

	CACFP %	**Non%**	**X2**	**p < value**
How often are whole grains offered?				
(N=266)	(n=230)	(n=36)	18.887	0.001*
Never	0.87	2.78		
Less than 1 time per week	3.48	11.11		
1 time per week	16.96	36.11		
Once a day	46.52	13.89		
2 or more times per day	32.17	36.11		
How often are breaded meats offered?				
(N=271)	(n=234)	(n=37)	14.104	0.007*
Never	6.84	21.62		
Less than 1 time per week	28.63	13.51		
1 time per week	56.41	56.76		
Once a day	3.42	8.11		
2 or more times per day	4.70	0.00		
How often are beans and lean meats offered?				
(N=271)	(n=234)	(n=37)	19.352	0.001*
Never	1.71	13.51		
Less than 1 time per week	5.13	5.41		
1 time per week	32.48	45.95		
Once a day	49.57	32.43		
2 or more times per day	11.11	2.70		
How often are salty or sweet snacks offered?				
(N=271)	(n=234)	(n=37)	5.033	0.284
Never	10.26	38.89		
Less than 1 time per week	36.32	27.78		
1 time per week	50.85	30.56		

Once a day	0.85	2.78		
2 or more times per day	1.71	0.00		
How often are pre-fried potatoes offered?				
(N=270)	(n=234)	(n=36)	23.146	0.000*
Never	10.26	38.89		
Less than 1 time per week	36.32	27.78		
1 time per week	50.85	30.56		
Once a day	0.85	2.78		
2 or more times per day	1.71	0.00		

***= Significant at p < 0.05**

Table 11: Comparisons of Meal and Snack Questions between NAP SACC and non NAP SACC Participants

	NAP SACC %	**Non%**	**X2**	**p < value**
How often are whole grains offered?				
(N=264)	(n=39)	(n=225)	1.938	0.747
Never	2.56	0.89		
Less than 1 time per week	2.56	4.89		
1 time per week	15.38	20.89		
Once a day	43.59	41.78		
2 or more times per day	35.90	31.56		
How often are breaded meats offered?				
(N=268)	(n=41)	(n=227)	12.874	0.012*
Never	0.00	10.13		
Less than 1 time per week	31.71	25.11		
1 time per week	53.66	57.71		
Once a day	2.44	4.41		
2 or more times per day	12.20	2.64		
How often are beans and lean meats offered?				
(N=268)	(n=41)	(n=227)	4.464	0.347
Never	2.44	3.52		
Less than 1 time per week	7.32	4.85		
1 time per week	21.95	37.00		
Once a day	53.66	45.81		
2 or more times per day	14.63	8.81		
How often are salty or sweet snacks offered?				
(N=268)	(n=41)	(n=227)	1.298	0.862
Never	4.88	5.73		
Less than 1 time per week	14.63	19.82		
1 time per week	58.54	49.78		
Once a day	19.51	20.70		
2 or more times per day	2.44	3.96		
How often are pre-fried potatoes offered?				
(N=267)	(n=41)	(n=226)	8.136	0.087
Never	4.88	15.49		
Less than 1 time per week	43.90	33.63		
1 time per week	46.34	48.67		
Once a day	0.00	1.33		
2 or more times per day	4.88	0.88		

***= Significant at p < 0.05**

Table12 : Comparison of Meal and Snack Questions between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
How often are whole grains offered?				
(N=264)	(n=52)	(n=212)	4.048	0.400
Never	0.00	1.42		
Less than 1 time per week	0.00	5.66		
1 time per week	23.08	19.34		
Once a day	44.23	41.51		
2 or more times per day	32.69	32.08		
How often are breaded meats offered?				
(N=268)	(n=54)	(n=214)	6.929	0.140
Never	12.96	7.48		
Less than 1 time per week	33.33	24.30		
1 time per week	48.15	59.35		
Once a day	0.00	5.14		
2 or more times per day	5.56	3.74		
How often are beans and lean meats offered?				
(N=268)	(n=54)	(n=214)	1.799	0.773
Never	3.70	3.29		
Less than 1 time per week	1.85	6.10		
1 time per week	33.33	35.68		
Once a day	50.00	45.54		
2 or more times per day	11.11	9.39		
How often are salty or sweet snacks offered?				
(N=268)	(n=54)	(n=214)	7.655	0.105
Never	12.96	3.74		
Less than 1 time per week	18.52	19.16		
1 time per week	50.00	51.40		
Once a day	14.81	21.96		
2 or more times per day	3.70	3.74		
How often are pre-fried potatoes offered?				
(N=267)	(n=54)	(n=213)	4.297	0.367
Never	18.52	12.68		
Less than 1 time per week	33.33	35.68		
1 time per week	44.44	49.30		
Once a day	0.00	1.41		
2 or more times per day	3.70	0.94		

***= Significant at p < 0.05**

Food Groups Offered

Participants were asked to select which food groups are typically served at breakfast, morning snack, lunch, and afternoon snack (Table 13). The most common food groups consumed at breakfast were fruit (n=256, 97.3%), grains (n=256, 97.7%), and dairy (n=256, 97.7%). At lunch, all food groups were reported: fruit (n=258, 98.1%); vegetable (n=262, 99.6%); protein (n=260, 98.9%); grain (n=248, 94.3%); and dairy

(n=259, 98.5%). Approximately one-third of participants did not serve a morning snack (n=100, 36.5%). The most commonly served food groups for morning snacks were grains (n=147, 84.5%) and fruit (n=140, 80.5%). Afternoon snacks were most likely to consist of grains (n=240, 89.2%) and fruit (n=232, 86.2%). Typical sweet consumption patterns were determined. The highest sweet consumption was at afternoon snack (n=128, 47.6%), followed by morning snack (n=25, 14.4%), breakfast (n=27, 10.3%), and lunch (n=6, 2.3%).

Table 13. Food Group Frequency per Meal Reported by Participants	**(n)**	**(%)**
In a typical breakfast, which of the following groups are offered?		
Fruit (N=262)	256	97.3
Vegetable(N=262)	19	7.3
Meat/Protein(N=262)	57	21.8
Grain(N=262)	256	97.7
Dairy(N=262)	256	97.7
Sweet(N=262)	27	10.3
In a typical lunch/dinner, which of the following groups are offered?		
Fruit (N=263)	258	98.1
Vegetable(N=263)	262	99.6
Meat/Protein(N=263)	260	98.9
Grain(N=263)	248	94.33
Dairy(N=263)	259	98.5
Sweet(N=263)	6	2.3
In a typical morning snack, which of the following groups are offered?		
Fruit (N=174)	140	80.5
Vegetable(N=174)	47	27.0
Meat/Protein(N=174)	32	18.4
Grain(N=174)	147	84.5
Dairy(N=174)	123	70.7
Sweet(N=174)	25	14.4
In a typical afternoon snack, which of the following groups are offered?		
Fruit (N=269)	232	86.25
Vegetable(N=269)	117	43.5
Meat/Protein(N=269)	104	38.7
Grain(N=269)	240	89.2
Dairy(N=269)	214	79.6
Sweet(N=269)	128	47.6

Number of food groups served at each meal was determined (Table 14). For breakfast the most commonly reported response was three food groups (n=189, 72.1%), the choice of four food groups was the second most reported (n=45, 17.2%), no provider

reported serving only one group at breakfast. Breakfast offering patterns of most participants aligned with the CACFP guidelines which are: to serve a fluid milk, grain, and fruit or vegetable for this meal and Nebraska guidelines to include all food categories except meat (2, 22). For lunch, the most chosen frequency of food groups was five (n=243, 92.4%). The typical lunch offering patterns of the majority of participants closely align with the CACFP guidelines (fluid milk, protein, grain, and two fruits or vegetables) and Nebraska guidelines (all food group in the lunch meal) (2, 22). Of those that served morning snack, the most common response was two food groups (n=54, 31.03%) closely followed by three food groups (n=51, 29.3%). For afternoon snack, the most common response was three food groups (n=72, 26.8%). The majority of the participants were following CACFP and Nebraska guidelines for snacks which are: to include two food groups (2, 22).

Table 14. Number of Food Groups per Meal Reported by Participants	**(n)**	**(%)**
How many food groups are served for a typical breakfast? (N=262)		
One	0	0.00
Two	12	4.6
Three	189	72.1
Four	45	17.2
Five	16	6.1
How many food groups are served for a typical Lunch/Dinner? (N=263)		
One	0	0.00
Two	0	0.00
Three	3	1.1
Four	17	6.5
Five	243	92.4
How many food groups are served for a typical morning snack? (N=174)		
One	21	12.1
Two	54	31.0
Three	51	29.3
Four	32	18.4

Five	16	9.2
How many food groups are served for a typical afternoon snack? (N=269)		
One	12	4.5
Two	61	22.7
Three	72	26.8
Four	64	23.8
Five	60	22.3

Food group frequency differences between participants from centers versus home care facilities and participants in nutrition and physical activity programs versus participants not participating in nutrition and physical activity programs were calculated (Tables 15-18). A non significant difference trending toward significant (p=0.096) was observed between child care center and home care providers for the area of food groups served in a typical breakfast (Table 15), with more child care centers (6.69%) only serving two food groups at breakfast compared to home care centers (3.96%). Child care centers less often met the guideline of three food groups at breakfast (66.67%) compared to home care participants (73.76%). A difference was observed between CACFP and non CACFP participants for food groups served at lunch or dinner (p=0.000) (Table 16). More CACFP participants (94.76%) served five food groups at lunch or dinner when compared to non CACFP participants (75.76%). A non significant difference trending toward significant was observed between CACFP participants and non CACFP participants (p=0.086) for the area of food groups served in a typical afternoon snack (Table 16). CACFP participants were more likely to include all food groups (24.24%) compared to non CACFP participants 10.81%). No differences were observed between NAP SACC and non NAP SACC participants (Table 17). A non significant difference trending toward significant (p=0.078) was observed between IMIL participants and non

IMIL participants for food groups served in a typical breakfast (Table 18). More IMIL participants served four groups (24.53%) compared to non IMIL participants (15.12%), however more IMIL participants also served only two groups (9.43%) compared to non IMIL participants (3.41%). No statistical differences were observed between groups for the meals of breakfast, morning snack, or afternoon snack. A difference was not observed for lunch for participants from center versus home care facilities, NAP SACC versus non NAP SACC, and IMIL versus non IMIL.

Table 15: Comparison of Food Group Frequency between Child Care Center and Home Care

	Center %	**Home %**	**X2**	**p < value**
How many food groups are served in a typical breakfast?				
(N=262)	(n=60)	(n=202)	6.349	0.096
One	0.00	0.00		
Two	6.67	3.96		
Three	66.67	73.76		
Four	25.00	14.85		
Five	1.67	7.43		
How many food groups are served in a typical lunch/dinner?				
(N=263)	(n=60)	(n=203)	.657	0.720
One	0.00	0.00		
Two	0.00	0.00		
Three	1.67	0.99		
Four	8.33	5.91		
Five	90.00	93.10		
How many food groups are served in a typical AM snack?				
(N=174)	(n=29)	(n=145)	5.965	0.202
One	6.90	13.10		
Two	27.59	31.72		
Three	27.59	29.66		
Four	17.24	18.62		
Five	20.69	6.90		
How many food groups are served in a typical PM snack?				
(N=269)	(n=64)	(n=205)	2.641	0.620
One	3.13	4.88		
Two	29.69	20.49		
Three	23.44	27.80		
Four	21.88	24.39		
Five	21.88	22.44		

***= Significant at p < 0.05**

Table 16: Comparison of Food Group Frequency between CACFP and non CACFP Participants

	CACFP %	Non %	X2	p < value
How many food groups are served in a typical breakfast? (N=261)	(n=230)	(n=31)	4.519	0.211
One	0.00	0.00		
Two	3.91	9.68		
Three	73.48	61.29		
Four	16.09	25.81		
Five	6.52	3.23		
How many food groups are served in a typical lunch/dinner? (N=262)	(n=229)	(n=33)	17.054	0.000*
One	0.00	0.00		
Two	0.00	0.00		
Three	0.44	6.06		
Four	4.80	18.18		
Five	94.76	75.76		
How many food groups are served in a typical AM snack? (N=174)	(n=154)	(n=20)	4.338	0.362
One	13.64	0.00		
Two	29.22	45.00		
Three	29.87	25.00		
Four	18.18	20.00		
Five	9.09	10.00		
How many food groups are served in a typical PM snack? (N=268)	(n=231)	(n=37)	8.164	0.086
One	4.33	5.41		
Two	21.21	32.43		
Three	25.11	37.84		
Four	25.11	13.51		
Five	24.24	10.81		

***= Significant at p < 0.05**

Table 17: Comparison of Food Group Frequency between NAP SACC and non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
How many food groups are served in a typical breakfast? (N=258)	(n=41)	(n=217)	1.586	0.663
One	0.00	0.00		
Two	2.44	5.07		
Three	78.05	71.43		
Four	12.20	17.97		
Five	7.32	5.53		
How many food groups are served in a typical lunch/dinner? (N=259)	(n=40)	(n=219)	0.912	0.634
One	0.00	0.00		
Two	0.00	0.00		
Three	2.50	0.91		
Four	5.00	6.85		
Five	92.50	92.24		

How many food groups are served in a typical AM snack? (N=172)	(n=28)	(n=144)	2.877	0.579
One	14.29	11.81		
Two	25.00	31.94		
Three	39.29	27.08		
Four	17.86	18.75		
Five	3.57	10.42		
How many food groups are served in a typical PM snack? (N=265)	(n=41)	(n=224)	2.190	0.701
One	4.88	4.46		
Two	21.95	23.21		
Three	34.15	25.45		
Four	24.39	23.66		
Five	14.63	23.21		

***= Significant at p < 0.05**

Table 18: Comparison of Food Group Frequency between IMIL and non IMIL Participants

	IMIL %	**Non %**	**X2**	**p < value**
How many food groups are served in a typical breakfast? (N=258)	(n=53)	(n=205)	6.816	0.078
One	0.00	0.00		
Two	9.43	3.41		
Three	60.38	75.61		
Four	24.53	15.12		
Five	5.66	5.85		
How many food groups are served in a typical lunch/dinner? (N=259)	(n=51)	(n=208)	0.894	0.640
One	0.00	0.00		
Two	0.00	0.00		
Three	0.00	1.44		
Four	7.84	6.25		
Five	92.16	92.31		
How many food groups are served in a typical AM snack? (N=172)	(n=38)	(n=134)	3.020	0.554
One	10.53	12.69		
Two	23.68	32.84		
Three	39.47	26.12		
Four	15.79	19.40		
Five	10.53	8.96		
How many food groups are served in a typical PM snack? (N=265)	(n=52)	(n=213)	2.157	0.707
One	1.92	5.16		
Two	21.15	23.47		
Three	32.69	25.35		
Four	25.00	23.47		
Five	19.23	22.54		

***= Significant at p < 0.05**

Beverages

Participants were asked questions regarding access to beverages and types served (Table 19). Best practice guidelines suggest water should be easily accessible both inside and outside (24). Water was reported as easily accessible inside by the majority of participants (n=240, 88.2%). When asked if water was easily accessible outside slightly over half reported yes (n=142, 52.6%). Best practice guidelines suggest children one to two years of age be served whole milk, while children over two years of age should be served lower fat 1% or skim milk (22, 24, 31). For types of milk served the most selected response for the ages of 12 to 24 months was 1% or skim (n=109, 43.4%). One percent or skim milk was most common for the over 24 month group (n=239, 87.9%). Whole milk was the second most selected response for the 12-24 month group (n=97, 38.6%). Whole milk was the least selected response for the over 24 months group (n=13, 4.8%). Other types of milk written in by participants included almond, rice, and soy. Brest practice guidelines suggest serving 100% juice no more than one time per day (22, 24, 31). Few providers were offering juice more than one time per day (n=19, 7.2%). Sugary drinks should be limited (22, 24, 31). The majority of providers never served sugary drinks (n=250, 91.9%).

Table 19. Participant Responses to the Beverage Question Frequency	**(n)**	**(%)**
Water is easily available for children to serve themselves inside? (N=272)		
Yes	240	88.2
No	32	11.8
Water is easily available for children to serve themselves outside? (N=270)		
Yes	142	52.6
No	128	47.5
Which type of milk is served to children 12 to 24 months? (N=251)		
1% or skim	109	43.4

2%	45	17.9
Whole milk	97	38.6
Which type of milk is served to children over 24 months? (N=272)		
1% or skim	239	87.9
2%	20	7.4
Whole milk	13	4.8
How often is 100% juice offered? (N=263)	45	17.1
Never	137	52.1
More than once a week	62	23.6
One time per day	19	7.2
More than one time per day		
How often are sugary drinks offered? (N=272)		
Never	250	91.9
More than once a week	13	4.8
One time per day	5	1.8
More than one time per day	4	1.5

Differences for beverage scores between participants from center and home care facilities and participants in nutrition or physical activity education programs versus participants not in nutrition of physical activity programs were determined (Tables 20-23). Statistical differences were observed between center and home facilities for the type of milk served to children 12 to 24 months (p=0.000), and milk served to children over 24 months old (p=0.019) (Table 20). Centers were more likely to offer whole milk to children ages 12 to 24 months (62.26%) compared to in home care participants(32.32%), however home care participants were more likely to offer 1% milk (90.73%) than center participants (79.10%) for children over 24 months. A non significant difference trending toward significant (p=0.098) was observed between child care centers and home care participants for the area of water being easily available for children to serve themselves inside. Child care centers were more likely to meet this criteria (93.94%) compared to home care participants (86.41%). Statistical differences were observed between CACFP and non CACFP participants for type of milk served to children 12 to 24 months

(p=0.002), and type of milk served to children over 24 months (p=0.000) (Table 21). Participants not in the CACFP program were more likely to serve whole milk to children ages 12 to 24 months (46.67%) compared to CACFP participants (37.27%). CACFP participants were more likely to meet the recommendation of 1% milk for children over 24 months (94.42%) compared to non CACFP participants (47.37%). Significant differences were observed between NAP SACC participants and non NAP SACC participants for the areas of type of milk served to children over 24 months (p=0.049) and offering of 100% juice (p=0.049) (Table 22). NAP SACC participants were more likely to serve 1% milk (90.24%) compared to non NAP SACC (87.22%), however had higher percentages for whole milk (9.76%) compared to (3.96%) for non NAP SACC participants. NAP SACC participants and non NAP SACC participants had similar responses for never serving juice (20.0%) compared to (16.89), however NAP SACC participants were more likely to serve juice more than once per day (17.50%) compared to (5.48%) non NAP SACC participants. No differences were observed for beverage scores between IMIL and non IMIL participants (Table 23).

Table 20: Comparison of Beverage Question Responses between Child Care Centers and Home Care

	Center %	**Home %**	**X2**	**p < value**
Water is easily available for children to serve themselves inside?				
(N=271)	(n=66)	(n=206)	2.731	0.098
Yes	93.94	86.41		
No	6.06	13.59		
Water is easily available for children to serve themselves outside?				
(N= 270)	(n=65)	(n=205)	0.268	0.605
Yes	55.38	51.71		
No	44.62	48.29		
Which type of milk is served to children 12 to 24 months?				
(N=251)	(n=53)	(n=198)	17.684	.000*
1% or skim	20.75	49.49		
2%	16.98	18.18		

Whole milk	62.26	32.32		
Which type of milk is served to children over 24 months?				
(N=272)	(n=67)	(n=205)	7.973	0.019*
1% or skim	79.10	90.73		
2%	14.93	4.39		
Whole milk	5.97	4.88		
How often is 100% juice offered?				
(N=263)	(n=66)	(n=197)	1.449	0.604
Never	15.15	17.77		
More than once a week	48.48	53.30		
One time per day	28.79	21.83		
More than one time per day	7.58	7.11		
How often are sugary drinks offered?				
(N=272)	(n=67)	(n=205)	1.695	0.638
Never	94.03	91.22		
More than once a week	4.48	4.88		
One time per day	0.00	2.44		
More than one time per day	1.49	1.46		

***= Significant at p < 0.05**

Table 21: Comparison of Beverage Question Responses between CACFP and Non CACFP Participants

	CACFP %	**Non %**	**X2**	**p < value**
Water is easily available for children to serve themselves inside?				
(N=271)	(n=233)	(n=38)	0.070	0.792
Yes	87.98	89.47		
No	12.02	10.53		
Water is easily available for children to serve themselves outside?				
(N= 269)	(n=231)	(n=38)	0.463	0.496
Yes	51.95	57.89		
No	48.05	42.11		
Which type of milk is served to children 12 to 24 months?				
(N=250)	(n=220)	(n=30)	12.878	0.002*
1% or skim	47.27	16.67		
2%	15.45	36.67		
Whole milk	37.27	46.67		
Which type of milk is served to children over 24 months?				
(N=271)	(n=233)	(n=38)	71.352	0.000*
1% or skim	94.42	47.37		
2%	2.58	36.84		
Whole milk	3.00	15.79		
How often is 100% juice offered?				
(N=263)	(n=224)	(n=38)	4.895	0.180
Never	15.63	26.32		
More than once a week	54.46	36.84		
One time per day	23.21	26.32		

More than one time per day	6.70	10.53		
How often are sugary drinks offered?				
(N=271)	(n=233)	(n=38)	3.947	0.267
Never	92.70	86.84		
More than once a week	3.86	10.53		
One time per day	1.72	2.63		
More than one time per day	1.72	0.00		

***= Significant at p < 0 .05**

Table 22: Comparison of Beverage Question Responses between NAP SACC and Non NAP SACC Participants

	NAP SACC %	**Non %**	**X2**	**p < value**
Water is easily available for children to serve themselves inside?				
(N=268)	(n=41)	(n=227)	0.019	0.891
Yes	87.80	88.55		
No	13.16	11.45		
Water is easily available for children to serve themselves outside?				
(N= 266)	(n=40)	(n=226)	1.100	0.294
Yes	45.00	53.98		
No	55.00	46.02		
Which type of milk is served to children 12 to 24 months?				
(N=248)	(n=40)	(n=208)	2.467	0.291
1% or skim	45.00	42.79		
2%	25.00	16.35		
Whole milk	30.00	40.87		
Which type of milk is served to children over 24 months?				
(N=268)	(n=41)	(n=227)	6.050	0.049*
1% or skim	90.24	87.22		
2%	0.00	8.81		
Whole milk	9.76	3.96		
How often is 100% juice offered?				
(N=254)	(n=40)	(n=219)	7.878	0.049*
Never	20.00	16.89		
More than once a week	42.50	52.97		
One time per day	20.00	24.66		
More than one time per day	17.50	5.48		
How often are sugary drinks offered?				
(N=268)	(n=41)	(n=227)	4.396	0.222
Never	90.24	92.07		
More than once a week	2.44	5.29		
One time per day	2.44	1.76		
More than one time per day	4.88	0.88		

***= Significant at p <0 .05**

Table 23: Comparison of Beverage Question Responses between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
Water is easily available for children to serve themselves inside?				
(N=268)	(n=54)	(n=214)	2.384	0.122
Yes	94.44	86.92		
No	5.56	13.08		
Water is easily available for children to serve themselves outside?				
(N= 266)	(n=51)	(n=212)	0.620	0.431
Yes	45.00	53.98		
No	55.00	46.02		
Which type of milk is served to children 12 to 24 months?				
(N=248)	(n=47)	(n=201)	0.322	0.851
1% or skim	44.68	42.79		
2%	14.89	18.41		
Whole milk	40.43	38.81		
Which type of milk is served to children over 24 months?				
(N=268)	(n=54)	(n=214)	1.244	0.537
1% or skim	87.04	87.85		
2%	5.56	7.94		
Whole milk	7.41	4.21		
How often is 100% juice offered?				
(N=254)	(n=51)	(n=208)	3.243	0.354
Never	11.76	18.75		
More than once a week	49.02	51.92		
One time per day	27.45	23.08		
More than one time per day	11.76	6.25		
How often are sugary drinks offered?				
(N=268)	(n=54)	(n=214)	2.407	0.492
Never	90.74	92.06		
More than once a week	3.70	5.14		
One time per day	1.85	1.87		
More than one time per day	3.70	0.93		

***= Significant at p < 0.05**

Menu and Food Preparation Practices

Participants were asked questions regarding food preparation practices (Table 24). When asked if food safety training for food preparation was required over half of participants responded yes (n=165, 65.5%). Less than half of participants reported routinely providing menus for parents (n=110, 42.3%). Many participants reported they would provide menus upon request (n=103, 39.6%), while a smaller portion reported that

they do not provide menus for parents (n= 47, 18.1%). Methods of menu preparation reported included in house preparation by child care provider (n=232, 86.2%), use of an outside vendor (n=23, 8.6%), and unplanned menus (n=14, 5.2%). Other methods of menu planning which were written in by participants included use of a registered dietitian and use of a school menu. Participants were asked to report conditions which receive dietary accommodations including allergies, vegetarian diets, physical impairment, and religious beliefs with the results indicating the following responses: allergies (n=186, 67.9%), religious beliefs (n=84, 30.7%), physical impairment (n=78, 28.5%), and vegetarian diets (n=71, 25.9%).

Table 24. Menu and Food Preparation Frequencies of Survey Participants	**(n)**	**(%)**
Are staff required to receive food safety training? (N=252)		
Yes	165	65.5
No	87	34.5
How are menus planned? (N=260)		
In House	110	42.3
By an Outside Vendor	47	18.1
Menus are Unplanned	103	39.6
Are menus provided for parents? (N=269)		
Yes	232	86.2
No	23	8.6
Only on Request	14	5.2
Which of the following receive dietary accommodations? (N=274)		
Allergies	186	67.9
Religion	84	30.7
Physical Impairment	78	28.5
Vegetarian	7	25.9

Differences in food safety training scores were determined (Tables 25-28). Best practice guidelines suggest providers should receive food safety training (24). No difference was observed for food safety between child care centers and home care facilities (Table 25). A significant difference was observed between CACFP and non

CACFP participants for food safety training (p=0.001) (Table 26). CACFP participants were more likely (69.12%) than non CACFP participants (41.18%) to require food safety training. No differences were observed for the requirement of food safety training for NAP SACC versus non NAP SACC participants (Table 27), or IMIL versus non IMIL participants (Table 28).

Table 25: Comparison of Food Safety Training between Child Care Center and Home Care

	Center %	Home %	X2	p < value
Are staff required to receive food safety training? (N=273)	(n=67)	(n=206)	0.121	0.728
Yes	76.12	78.16		
No	23.88	21.84		
***= Significant at p < 0.05**				

Table 26: Comparison of Food Safety Training between CACFP and Non CACFP Participants

	CACFP %	Non %	X2	p < value
Are staff required to receive food safety training? (N=251)	(n=217)	(n=214)	10.138	0.001*
Yes	69.12	41.18		
No	30.88	58.82		
***= Significant at p < 0.05**				

Table 27: Comparison of Food Safety Training between NAP SACC and Non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
Are staff required to receive food safety training? (N= 249)	(n=38)	(n=211)	1.341	0.247
Yes	73.68	63.98		
No	26.32	36.02		
***= Significant at p < 0.05**				

Table 28: Comparison of Food Safety Training between IMIL and Non IMIL Participants

	IMIL%	Non %	X2	p < value
Are staff required to receive food safety training? (N= 249)	(n=48)	(n=201)	0.759	0.384
Yes	70.83	64.18		
No	29.17	35.82		
***= Significant at p < 0.05**				

Nutrition Policy and Feeding Practices

Participants were asked questions regarding feeding practices (Table 29). Best practice guidelines suggest staff should eat with children, meals should be served family style, and food should not be used as a reward or punishment (24, 31). The majority of participants reported staff eating with the children (n=212, 77.7%). Less than half of participants reported serving food family style (n=112, 41.5%). Using food as a reward or punishment was not frequently reported (n=4, 1.5%). The majority of participants reported encouraging healthy snacks for celebrations (n=208, 77.3%). A written policy for nutrition was not common (n=87, 32.5%).

Table 29. Nutrition Policy and Feeding Practices Frequencies for Participants	**(n)**	**(%)**
Do you or your staff eat with the children? (N=273)		
Yes	212	77.7
No	61	22.3
Are meals served family style? (N=270)		
Yes	112	41.5
No	158	58.5
Is food used as reward or punishment? (N=273)		
Yes	4	1.5
No	269	98.5
Are healthy options encouraged to be brought in for celebrations and holidays? (N= 269)		
Yes	208	77.3
No	61	22.1
Do you have a written nutrition policy? (N= 268)		
Yes	87	32.5
No	181	67.5

Differences in feeding practice scores were determined (Tables 30-33). A significant difference was observed between child care centers and home care facilities for the areas of serving meals family style (p=0.031) and having a written nutrition policy (p=0.009) (Table 30). Home care participants were more likely to meet the recommendation to

serve meals family style (54.55%) than child care centers (37.25%) (21, 30). Centers were more likely to meet the guideline to have a written nutrition policy (45.45%) compared to home care facilities (28.22%) (24). A non significant difference trending toward significant (p=0.051) was observed between CACFP participants and non CACFP participants for the area of staff eating with children (Table 31). CACFP participants were more likely to eat with children (79.91%) compared to non CACFP participants (65.79%). When comparing feeding practice scores no significant difference was observed for CACFP participants versus non CACFP participants (Table 31), NAP SACC participants versus non NAP SACC participants (Table 32), or IMIL participants versus non IMIL participants (Table 33).

Table 30: Comparison of Nutrition and Feeding Practices between Child Care Center and Home Care

	Center %	**Home %**	**X2**	**p < value**
Do you or your staff eat with the children?				
(N=273)	(n=61)	(n=206)	0.121	0.728
Yes	76.12	78.16		
No	23.88	21.84		
Are meals served family style?				
(N=270)	(n=66)	(n=204)	6.142	0.031*
Yes	37.25	54.55		
No	62.75	45.45		
Is food used as reward or punishment?				
(N=273)	(n=67)	(n=206)	0.000	0.983
Yes	1.49	1.46		
No	98.51	98.54		
Are healthy options encouraged to be brought in for celebrations and holidays?				
(N=269)	(n=66)	(n=203)	1.863	0.172
Yes	71.21	79.31		
No	28.79	20.69		
Do you have a written nutrition policy?				
(N=268)	(n=66)	(n=202)	6.741	0.009*
Yes	45.45	28.22		
No	54.55	71.78		

***= Significant at p < 0.05**

Table 31: Comparison of Nutrition and Feeding Practices between CACFP and Non CACFP Participants

	CACFP %	Non %	X2	p < value
Do you or your staff eat with the children?				
(N=272)	(n=234)	(n=38)	3.794	0.051
Yes	79.91	65.79		
No	20.09	34.21		
Are meals served family style?				
(N=269)	(n=232)	(n=37)	0.328	0.567
Yes	41.30	45.95		
No	58.70	54.05		
Is food used as reward or punishment?				
(N=272)	(n=234)	(n=38)	0.411	0.522
Yes	1.28	2.63		
No	98.72	97.37		
Are healthy options encouraged to be brought				
in for celebrations and holidays?	(n=230)	(n=38)	1.096	0.295
(N=268)	78.70	71.05		
Yes	21.30	28.95		
No				
Do you have a written nutrition policy?				
(N=267)	(n=230)	(n=37)	0.604	0.437
Yes	33.48	27.03		
No	66.52	72.97		

***= Significant at p < 0.05**

Table 32: Comparison of Nutrition and Feeding Practices between NAP SACC and Non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
Do you or your staff eat with the children?				
(N=269)	(n=41)	(n=228)	2.679	0.102
Yes	87.80	76.32		
No	12.20	23.68		
Are meals served family style?				
(N=266)	(n=41)	(n=225)	1.102	0.294
Yes	48.78	40.00		
No	51.22	60.00		
Is food used as reward or punishment?				
(N=269)	(n=41)	(n=228)	0.703	0.393
Yes	0.00	1.75		
No	100.00	98.25		
Are healthy options encouraged to be brought				
in for celebrations and holidays?	(n=40)	(n=225)		
(N=265)	82.50	76.00	0.810	0.368
Yes	17.50	24.00		
No				
Do you have a written nutrition policy?				
(N=264)	(n=38)	(n=226)	.2.525	0.112
Yes	21.05	34.07		
No	78.95	65.93		

***= Significant at p < 0.05**

Table 33: Comparison of Nutrition and Feeding Practices between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
Do you or your staff eat with the children?				
(N=264)	(n=54)	(n=215)	0.096	0.756
Yes	79.63	77.67		
No	20.37	22.33		
Are meals served family style?				
(N=266)	(n=53)	(n=213)	1.619	0.203
Yes	49.06	39.44		
No	50.94	60.56		
Is food used as reward or punishment?				
(N=269)	(n=54)	(n=215)	1.020	0.313
Yes	0.00	1.86		
No	100.00	98.14		
Are healthy options encouraged to be brought in for celebrations and holidays?				
(N=265)	(n=52)	(n=213)	0.557	0.456
Yes	73.08	77.93		
No	26.92	22.07		
Do you have a written nutrition policy?				
(N=264)	(n=52)	(n=212)	1.988	0.158
Yes	40.38	30.19		
No	59.62	69.81		

***= Significant at p < 0.05**

Infant Feeding Practices

Participants were asked questions regarding infant feeding practices (Table 34). Participants whom did not care for infants were asked to not complete this section of the survey. Guidelines suggest encouraging mothers to breastfeed and supporting breastfeeding practices (31). When asked if willing to store and prepare expressed breast milk the majority of the participants responded yes (n= 235, 99.6%). Many participants made on site arrangements for mothers to breastfeed (n=206, 89.6%) and the majority of the participants made a feeding plan with the parent (n=213, 91.4%). Formula was most often provided by the facility (n=100, 61.3%), some parents provided formula to the facility (n=63, 38.7%). Written responses suggested that on occasion participants provided a certain type of formula and anything additional or different was to be provided

by parents. It is generally considered acceptable to begin age appropriate solids between four to six months, however best practice guidelines suggest infants do not need solids before six months (31). Solid foods were most often introduced between 4 to 6 months (n=135, 60%). The second most common response for introduction of solids was six months or later (n=88, 39.1%). Some participants reported beginning solids before the age of four months (n= 2, .9%). Best practice guidelines suggest infants should be fed on demand (30). Provider most often reported feeding infants on demand (n=142, 73.2%) versus feeding on a schedule (n= 52, 26.8%).

Table 34. Infant Feeding Frequencies of Participants	**(n)**	**(%)**
Are you willing to store and prepare breast milk? (N=236)		
Yes	235	99.6
No	1	0.4
Do you provide onsite arrangements for mothers to breastfeed? (N=237)		
Yes	206	86.9
No	31	13.1
Do you develop plans with parents for introduction of solid foods? (N=233)		
Yes	213	91.4
No	20	8.6
How is infant formula provided? (N= 163)		
Facility	100	61.3
Parents	63	38.7
When do you typically introduce age appropriate solid foods? (N= 225)		
Before 4 Months	2	0.9
Between 4 to 6 Months	155	60.0
6 Months or Later	88	39.1
Infants are typically fed? (N=194)		
Following a Schedule	52	26.8
On Demand	142	73.2

Differences for infant feeding practice between groups were determined (Tables 35-38). Statistical differences were observed between child care centers and home facilities for willingness to store and prepare breast milk (p=0.050) and providing onsite

arrangements for mothers to breastfeed (p=0.009) (Table 35). Home care participants were more likely to be willing to store and prepare breast milk (100%) compared to centers (97.96%), however centers were more likely to provide onsite arrangements to breastfeed (98%) compared to home care participants (83.96%). Statistical differences were observed between CACFP participants and non CACFP participants for developing a plan with parents to introduce solids (p=0.007) (Table 36). CACFP participants were more likely to meet the guideline to develop a plan with parents for introduction of solids (93.17%) compared to non CACFP participants (77.78%). Significant differences were observed between NAP SACC participants and non NAP SACC participants for willingness to store and prepare breast milk (p=0.015) and age of introduction of age appropriate solids (p=0.002) (Table 37). NAP SACC participants were less likely to meet guidelines to store and prepare breast milk (97.06%) compared to non NAP SACC participants (100%). NAP SACC participants more often began solids before four months of age (6.25%) when compared to non NAP SACC participants. No differences were observed for IMIL versus non IMIL participants (Table 38). No differences were observed between child care center and home care or participants of nutrition and physical activity programs versus those whom are not participants of nutrition and physical activity programs for the area of how infants are typically fed.

Table 35: Comparison of Infant Feeding between Child Care Center and Home Care

	Center %	**Home %**	**X2**	**p < value**
Are you willing to store and prepare breast milk?	(n=49)	(n=187)	3.833	0.050*
(N=236)	97.96	100.0		
Yes	2.04	0.00		
No				
Do you provide onsite arrangements for mothers to breastfeed?	(n=50)	(n=187)	6.843	0.009*

(N=237)	98.00	83.96		
Yes	2.00	16.04		
No				
Do you develop plans with parents for introduction of solid foods?	(n=48)	(n=185)	1.182	0.277
(N=233)	87.50	92.43		
Yes	12.50	7.57		
No				
When do you typically introduce age appropriate solid foods?	(n=46)	(n=179)	4.887	0.087
(N= 225)	0.00	1.12		
Before 4 Months	73.91	56.42		
Between 4 to 6 Months	26.09	42.46		
6 Months or Later				
Infants are typically fed?	(n=35)	(n=159)	3.790	0.052
(N=194)	40.00	23.90		
Following a Schedule	60.00	76.10		
On Demand				

***= Significant at p < 0.05**

Table 36: Infant Feeding CACFP versus Non

	CACFP %	**Non %**	**X2**	**p < value**
Are you willing to store and prepare breast milk?	(n=207)	(n=28)	0.136	0.712
(N=235)	99.52	100.0		
Yes	0.48	0.00		
No				
Do you provide onsite arrangements for mothers to breastfeed?	(n=207)	(n=29)	0.013	0.911
(N=236)	86.96	86.21		
Yes	13.04	13.79		
No				
Do you develop plans with parents for introduction of solid foods?	(n=205)	(n=27)	7.176	0.007*
(N=232)	93.17	77.78		
Yes	6.83	22.22		
No				
When do you typically introduce age appropriate solid foods?				
(N=224)	(n=197)	(n=27)	2.361	0.307
Before 4 Months	1.02	0.00		
Between 4 to 6 Months	61.93	48.15		
6 Months or Later	37.06	51.85		
Infants are typically fed?				
(N=193)	(n=171)	(n=22)	0.224	0.636
Following a Schedule	27.49	22.73		
On Demand	72.51	77.27		

***= Significant at p < 0.05**

Table 37: Comparison of Infant Feeding between NAP SACC and Non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
Are you willing to store and prepare breast milk?	(n=34)	(n=199)	5.878	.015*
(N=233)	97.06	100.0		
Yes	2.94	0.00		
No				
Do you provide onsite arrangements for mothers to breastfeed?	(n=35)	(n=191)	6.669	.414
(N=233)	82.86	87.88		
Yes	17.14	12.12		
No				
Do you develop plans with parents for introduction of solid foods?	(n=34)	(n=195)	.000	.984
(N=229)	91.18	91.28		
Yes	8.82	8.72		
No				
When do you typically introduce age appropriate solid foods?	(n=32)	(n=189)	12.015	.002*
(N= 221)	6.25	0.00		
Before 4 Months	59.38	60.32		
Between 4 to 6 Months	34.38	39.68		
6 Months or Later				
Infants are typically fed?	(n=31)	(n=161)	2.063	.151
(N=192)	16.13	28.57		
Following a Schedule	83.87	71.43		
On Demand				

***= Significant at p < 0.05**

Table 38: Comparison of Infant Feeding between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
Are you willing to store and prepare breast milk?	(n=43)	(n=189)	0.227	0.634
(N=233)	100.0	99.47		
Yes	0.00	0.53		
No				
Do you provide onsite arrangements for mothers to breastfeed?	(n=44)	(n=189)	0.693	0.405
(N=233)	90.91	86.24		
Yes	9.09	13.76		
No				
Do you develop plans with parents for introduction of solid foods?	(n=43)	(n=186)	0.205	0.651
(N=229)	93.02	90.86		
Yes	6.98	9.14		
No				
When do you typically introduce age appropriate solid foods?	(n=40)	(n=181)	1.609	0.447
(N= 221)	35.00	39.78		
Before 4 Months	62.50	59.67		

Between 4 to 6 Months	2.50	0.55		
6 Months or Later				
Infants are typically fed? (N=192)	(n=39)	(n=153)	0.444	0.505
Following a Schedule	30.77	25.49		
On Demand	69.23	74.51		
***= Significant at p < 0.05**				

Physical Activity

Participants were asked physical activity questions in regards to policies, frequency, and types of activity (Table 39). Best practice guidelines include having a physical activity policy (24). Less than half of participants reported having a physical activity policy (n=118, 43.4%). Guidelines also suggest not limiting physical activity as a form of punishment and very few participants reported limiting physical activity as a form of punishment (n=28, 10.3%) (24). Best practice guidelines suggest staff should receive physical activity education twice per year or more while children should receive education through curriculum at least once per week (24). When asked frequency of physical education training for staff the most common answer was two or more times per year (n=85, 33.9%). Participants were also asked frequency of providing physical activity curriculum to children. The most common response was one time per week or more (n=111, 44.9%). The second most common response was never (n=76, 30.8%). Participants were asked how many minutes of active play children received daily. Guidelines suggest a minimum of 60 minutes of activity per day (24, 26). The most common response was more than 60 minutes (n=203, 75.5%), followed by 31-60 minutes (n=53, 19.7%), and 6 to 30 minutes (n=13, 4.8%). No participants reported less than five minutes of active play per day. Participants were also asked about the amount of screen time allowed per day as this may affect the amount of physical activity. Guidelines

recommend a maximum amount of 180 minutes or 2 hours per day with less time being preferred (24). The most common answer was six to 60 minutes of screen time (n=154, 60.6%). The second most common response was five minutes or less (n=60, 23.6%). The least common response was 120 minutes or more (n=9, 3.6%). Options were given for types of activities conducted including indoor free play, outdoor free play, indoor instructed play, and outdoor instructed play. Participants most often selected outdoor free play (n=265, 97.1%) followed by indoor free play (n=260, 95.2%), indoor instructed (n=215, 78.8%), and outdoor instructed (n=151, 55.3%).

Table 39. Physical Activity Question Frequencies of Participants	**(n)**	**(%)**
Do you have a physical activity policy? (N=272)		
Yes	118	43.7
No	154	56.6
Do you withhold activity from children whom misbehave? (N=271)		
Yes	28	10.3
No	243	89.7
How often are training opportunities on physical activity provided for you or staff? (N=251)		
Never	63	25.1
Less Than 1 Time Per Year	34	13.5
1 Time Per Year	69	27.5
2 Times Per Year or More	85	33.9
How often is physical activity education provided to children through standardized curriculum? (N=247)		
Never	76	30.8
1 Time Per Year or Less	34	13.8
1 Time Per Month	26	10.5
1 Time Per Week or More	111	44.9
How many minutes of active play time do children receive per day? (N=269)		
5 Minutes or Less	0	0.00
6 to 60 Minutes	13	4.8
61 to 120 Minutes	53	19.7
More than 120 Minutes	203	75.5
In a typical day, what types of physical activity do children do? (N=273)		
Outdoor Free Play	265	97.1
Outdoor Instructed Play	151	55.3
Indoor Free Play	260	95.2
Indoor Instructed Play	215	78.8

How many minutes of screen time are allowed per day? (N=254)		
5 Minutes or Less	60	23.6
6 to 60 Minutes	154	60.6
61 to 120 Minutes	31	12.2
More than 120 Minutes	9	3.5

Differences between child care center versus home care and participants of nutrition and physical activity programs versus participants not participating in nutrition and physical activity programs were determined (Tables 40-43). Statistical differences were observed between child care centers and home care for the areas of having a physical activity policy (p=0.008), training opportunities provided for staff (p=0.006), physical activity curriculum provided to children (p=0.001), and minutes of active screen time (p=0.000). Child care centers were more likely to meet guidelines to have a physical activity policy (58.21%) compared to home care (38.54%). Child care centers were more likely to meet guidelines to provide training to staff two times per year (40.37%) compared to home care(31.52%), child care centers less often reported never providing training to staff (10.45%) compared to in home care facilities (31.30%). Centers were more likely to provide physical activity education to children at the guideline of once per week (65.08%) compared to in home care facilities (38.04%). Centers less often reported screen time over 120 minutes (0.00%) compared to in home care (4.71%).). Statistical differences were observed for NAP SACC participants versus non NAP SACC participants for the area of minutes of active play time children receive per day. Non NAP SACC participants were more likely to meet the guidelines of 60 or more minutes of active play (20.87%) when compared to NAP SACC participants (12.20%). Statistical differences were observe between IMIL and non IMIL participants for the area of

physical activity training opportunities provided to staff (p=0.011). IMIL participants were more likely to provide training to staff at least once per year (41.18%) when compared to non IMIL participants (24.24%). A non significant difference trending toward significant (p=0.098) was observed between IMIL participants and non IMIL participants for the area of having a physical activity policy. IMIL participants were more likely to have a physical activity policy (52.83%) compared to non IMIL participants (40.28%). No differences were observed for physical activity scores between CACFP and non CACFP participants. Differences were not observed between any groups for the area of withholding activity from children whom misbehave.

Table 40: Comparison of Physical Activity between Child Care Center and Home Care

	Center %	**Home %**	**X2**	**p < value**
Do you have a physical activity policy?				
(N=272)	(n=67)	(n=205)	7.956	0.008*
Yes	58.21	38.54		
No	41.79	61.46		
Do you withhold activity from children whom misbehave?				
(N=271)	(n=67)	(n=204)	2.027	0.155
Yes	14.93	8.82		
No	85.07	91.18		
How often are training opportunities on physical activity provided for you or staff?				
(N=251)	(n=67)	(n=184)	12.604	0.006*
Never	10.45	30.43		
Less Than 1 Time Per Year	20.90	10.87		
1 Time Per Year	28.36	27.17		
2 Times Per Year or More	40.30	31.52		
How often is physical activity education provided to children through standardized curriculum?				
(N=247)	(n=63)	(n=184)	17.069	0.001*
Never	12.70	36.96		
1 Time Per Year or Less	11.11	14.67		
1 Time Per Month	11.11	10.33		
1 Time Per Week or More	65.08	38.04		
How many minutes of active play time do children receive per day?				
(N=269)	(n=66)	(n=203)	2.515	0.284
5 Minutes or Less	0.00	0.00		
6 to 60 Minutes	6.06	4.43		
	25.76	17.73		

61 to 120 Minutes	68.18	77.83		
More than 120 Minutes				
How many minutes of screen time are allowed per day?				
(N=254)	(n=63)	(n=191)	74.678	0.000*
5 Minutes or Less	63.49	10.47		
6 to 60 Minutes	31.75	70.16		
61 to 120 Minutes	4.76	14.66		
More than 120 Minutes	0.00	4.71		

***= Significant at p < 0.05**

Table 41 : Comparison of Physical Activity between CACFP and Non CACFP Participants

	CACFP %	**Non %**	**X2**	**p < value**
Do you have a physical activity policy?				
(N=271)	(n=232)	(n=39)	0 .003	0.955
Yes	43.10	43.59		
No	56.90	56.41		
Do you withhold activity from children whom misbehave?				
(N=270)	(n=231)	(n=39)	0.294	0.587
Yes	9.96	12.82		
No	90.04	87.18		
How often are training opportunities on physical activity provided for you or staff?				
(N=250)	(n=215)	(n=35)	0.605	0.895
Never	26.05	20.00		
Less Than 1 Time Per Year	13.02	14.29		
1 Time Per Year	27.44	28.57		
2 Times Per Year or More	33.49	37.14		
How often is physical activity education provided to children through standardized curriculum?				
(N=246)	(n=212)	(n=34)	4.550	0.208
Never	30.19	32.35		
1 Time Per Year or Less	15.57	2.94		
1 Time Per Month	10.85	8.82		
1 Time Per Week or More	43.40	55.88		
How many minutes of active play time do children receive per day?				
(N=268)	(n=230)	(n=38)	0.808	0.668
5 Minutes or Less	0.00	0.00		
6 to 60 Minutes	5.22	2.63		
61 to 120 Minutes	19.13	23.68		
More than 120 Minutes	75.65	73.68		
How many minutes of screen time are allowed per day?				
(N=253)	(n=219)	(n=34)	4.710	0.194
5 Minutes or Less	21.46	38.24		
6 to 60 Minutes	62.56	47.06		
61 to 120 Minutes	12.33	11.76		
More than 120 Minutes	3.65	2.94		

***= Significant at p < 0.05**

Table 42: Comparison of Physical Activity between NAP SACC and Non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
Do you have a physical activity policy?				
(N=269)	(n=41)	(n=228)	0.255	0.614
Yes	46.34	42.11		
No	53.66	57.89		
Do you withhold activity from children whom misbehave?	(n=41)	(n=227)	0.158	0.691
(N=268)	12.20	10.13		
Yes	87.80	89.87		
No				
How often are training opportunities on physical activity provided for you or staff?				
(N=249)	(n=38)	(n=211)	2.25	0.5031
Never	23.68	25.59		
Less Than 1 Time Per Year	7.89	14.69		
1 Time Per Year	26.32	27.96		
2 Times Per Year or More	42.11	31.75		
How often is physical activity education provided to children through standardized curriculum?	(n=37)	(n=209)	1.640	0.650
(N=246)	29.73	31.10		
Never	10.81	14.35		
1 Time Per Year or Less	16.22	9.57		
1 Time Per Month	43.24	44.98		
1 Time Per Week or More				
How many minutes of active play time do children receive per day?	(n=41)	(n=225)	6.638	0.036*
(N=266)	0.00	0.00		
5 Minutes or Less	12.20	3.56		
6 to 60 Minutes	12.20	20.89		
61 to 120 Minutes	75.61	75.56		
More than 120 Minutes				
How many minutes of screen time are allowed per day?				
(N=251)	(n=40)	(n=211)	4.800	0.187
5 Minutes or Less	17.50	24.17		
6 to 60 Minutes	75.00	58.29		
61 to 120 Minutes	7.50	13.27		
More than 120 Minutes	0.00	4.27		

***= Significant at p < 0.05**

Table 43 : Comparison of Physical Activity between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
Do you have a physical activity policy?				
(N=269)	(n=53)	(n=216)	2.740	0.098
Yes	52.83	40.28		
No	47.17	59.72		
Do you withhold activity from children whom misbehave?				
(N=268)	(n=53)	(n=215)	0.073	0.788
Yes	9.43	10.70		
No	90.57	89.30		
How often are training opportunities on physical activity provided for you or staff?				
(N=249)	(n=51)	(n=198)	11.097	0.011*
Never	13.73	28.28		
Less Than 1 Time Per Year	5.88	15.66		
1 Time Per Year	41.18	24.24		
2 Times Per Year or More	39.22	31.82		
How often is physical activity education provided to children through standardized curriculum?	(n=48)	(n=198)	4.954	0.175
(N=246)	31.25	30.81		
Never	4.17	16.16		
1 Time Per Year or Less	12.50	10.10		
1 Time Per Month	52.08	42.93		
1 Time Per Week or More				
How many minutes of active play time do children receive per day?	(n=53)	(n=215)	0.526	0.769
(N=266)	0.00	0.00		
5 Minutes or Less	3.77	5.16		
6 to 60 Minutes	22.64	18.78		
61 to 120 Minutes	73.58	76.06		
More than 120 Minutes				
How many minutes of screen time are allowed per day?				
(N=251)	(n=51)	(n=200)	5.402	0.145
5 Minutes or Less	29.41	21.50		
6 to 60 Minutes	64.71	60.00		
61 to 120 Minutes	3.92	14.50		
More than 120 Minutes	1.96	4.00		

***= Significant at p < 0.05**

Infant Activity

Recommendations for physical activities for infants focus on two key areas of tummy time and infant equipment. Participants were asked if daily tummy time was provided to infants (Table 44). Guidelines suggest daily tummy time to promote muscle

growth and development (24). Only one provider reported not providing daily tummy time for infants (n=1, 0.4%). Guidelines suggest limiting time infants are spent in equipment including swings, bouncers, etc. (24). Time spent in infant equipment was categorized as: five minutes or less, six to 60 minutes, 61 to 120 minutes, and more than 120 minutes. The most common response was six to 60 minutes (n=165, 69.3%). The second most common response was 61 to 120 minutes (n=42, 17.6%) followed by five minutes or less (n=22, 9.2%). The least common response was more than 120 minutes (n=9, 3.8%).

Table 44. Infant Physical Activity Frequency of Participants	**(n)**	**(%)**
Do infants receive daily tummy time? (N=245)		
Yes	244	99.6
No	1	0.4
How many minutes per day do infants spend in equipment? (N=238)		
5 Minutes or Less	22	9.2
6 to 60 Minutes	165	69.3
61 to 120 Minutes	42	17.6
More than 120 Minutes	9	3.8

Differences between infant activity scores were determined for child care centers versus home care and participants in nutrition and physical activity programs versus participants not in nutrition and physical activity programs (Tables 45-48). No differences were observed between child care centers and home care facilities for infant activity (Table 45). No differences were observed between CACFP and non CACFP participants for infant activity (Table 46). Statistical differences were observed between NAP SACC and non NAP SACC participants for infants receiving daily tummy time ($p=0.023$) and time spend in infant equipment ($p=0.010$) (Table 47). NAP SACC participants were less likely to provide daily tummy time (97.44%) compared to non

NAP SACC participants (100%), however non NAP SACC participants were more likely to keep infants in equipment for over 120 minutes (4.56%) compared to NAP SACC participants (0.00%). Non Nap SACC participants were more likely to keep infants in equipment for the 6 to 60 minute time frame (92.31%) than non NAP SACC participants (65.31%). Differences for infant activity were not observed between IMIL and non IMIL participants (Table 48).

Table 45 : Comparison of Infant Activity between Child Care Center and Table Home Care

	Center %	**Home %**	**X2**	**p < value**
Do infants receive daily tummy time?				
(N=245)	(n=49)	(n=195)	0.25	0.616
Yes	100.0	99.49		
No	0.00	0.51		
How many minutes per day do infants spend in equipment?				
(N=238)	(n=50)	(n=188)	6.279	0.099
5 Minutes or Less	18.00	6.91		
6 to 60 Minutes	62.00	71.28		
61 to 120 Minutes	18.00	17.55		
More than 120 Minutes	2.00	4.26		
***= Significant at p < 0.05**				

Table 46 : Comparison of Infant Activity between CACFP and Non CACFP Participants

	CACFP %	**Non%**	**X2**	**p < value**
Do infants receive daily tummy time?				
(N=244)	(n=214)	(n=30)	0.141	0.708
Yes	99.53	100.00		
No	0.47	0.00		
How many minutes per day do infants spend in equipment?				
(N=237)	(n=208)	(n=29)	1.376	0.711
5 Minutes or Less	9.62	6.90		
6 to 60 Minutes	68.75	72.41		
61 to 120 Minutes	18.27	13.79		
More than 120 Minutes	3.37	6.90		
***= Significant at p < 0.05**				

Table 47 : Comparison of Infant Activity between NAP SACC and Non NAP SACC Participants

	NAP SACC %	Non %	X2	p < value
Do infants receive daily tummy time?				
(N=241)	(n=39)	(n=202)	5.201	0.023*
Yes	97.44	100.0		
No	2.56	0.00		
How many minutes per day do infants spend in equipment?				
(N=235)	(n=39)	(n=196)	11.381	0.010*
5 Minutes or Less	2.56	9.69		
6 to 60 Minutes	92.31	65.31		
61 to 120 Minutes	5.13	20.41		
More than 120 Minutes	0.00	4.59		

***= Significant at p < 0.05**

Table 48: Comparison of Infant Activity between IMIL and Non IMIL Participants

	IMIL %	Non%	X2	p < value
Do infants receive daily tummy time?				
(N=241)	(n=46)	(n=195)	0.237	0.626
Yes	100.0	99.49		
No	0.00	0.51		
How many minutes per day do infants spend in equipment?				
(N=235)	(n=45)	(n=190)	4.345	0.222
5 Minutes or Less	13.33	7.37		
6 to 60 Minutes	73.33	68.95		
61 to 120 Minutes	13.33	18.95		
More than 120 Minutes	0.00	4.74		

***= Significant at p < 0.05**

Self-Efficacy

Participants were asked questions which addressed self-efficacy by determining confidence with performing various nutrition and physical activity related activities (Table 49). When asked how confident participants were that they had adequate training to tech nutrition the most common response was confident (n=138, 51.5%). The most common response for how confident are you that you have the skills to safely prepare meals was very confident (n=181, 67.0%). When asked about confidence in their ability to plan healthy menus the most common response was very confident (n=168, 62.5%).

When asked about their ability to interest children in learning about nutrition the most common response was confident (n=119, 43.9%). When asked about confidence to teach physical activity the most common response was confident (n=123, 45.7%).

Table 49. Self-Efficacy Frequencies of Participants	**(n)**	**(%)**
How confident are you that you have adequate training to teach nutrition? (N=268)		
Not At All Confident	6	2.2
Not Very Confident	24	9.0
Not Sure	41	15.3
Confident	138	51.5
Very Confident	59	22.0
How confident are you that you have the skills to safely prepare meals? (N=270)		
Not At All Confident	0	0.0
Not Very Confident	4	1.5
Not Sure	1	0.4
Confident	84	31.1
Very Confident	181	67.0
How confident are you that you have the skills to create a healthy menu? (N=269)		
Not At All Confident	1	0.4
Not Very Confident	3	1.1
Not Sure	5	1.9
Confident	92	34.2
Very Confident	168	62.5
How confident are you that you can interest children in learning about nutrition? (N=271)		
Not At All Confident	0	0.0
Not Very Confident	8	3.0
Not Sure	51	18.8
Confident	119	43.9
Very Confident	93	34.3
How confident are you in your ability to teach physical activity? (N=269)		
Not At All Confident	2	0.7
Not Very Confident	5	1.9
Not Sure	26	9.7
Confident	123	45.7
Very Confident	113	42.0

Differences for physical activity scores were determined for child care centers versus home care and participants in nutrition and physical activity programs versus participants not in nutrition and physical activity programs were determined (Tables 50-53). Statistical differences were observed between child care and home care for the areas

of confidence to teach nutrition (p=0.000), confidence to safely prepare meals (0.000), and confidence to create a healthy menu (p=0.000) (Table 50). For confidence of adequate training to teach nutrition child care centers more often selected not at all confident (24.24%) compared to home care (3.96%). Home care participants were more likely to select very confident (73.17%) for skills to safely prepare meals than child care center participants (47.64%). In the category of skills to prepare a healthy menu home care participants were more likely to select very confident (68.29%) compared to child care center participants (43.75%). Statistical differences were observed between CACFP and non CACFP participants for the categories of confidence to teach nutrition (p=0.003), confidence to safely prepare meals (p=0.002), and skills to create a healthy menu (p=0.001) (Table 51). CACFP participants scored higher in the area of adequate training to teach nutrition with more CACFP participants selecting very confident (23.48%) compared to non CACFP participants (13.51%), and confident (54.35%) compared to (35.14%). CACFP participants more often selected very confident for skills to safely prepare meals (70.43%) compared to non CACFP participants (48.72%). CACFP participants were more likely to select very confident (65.94%) compared to non CACFP participants (43.59%) for skills to prepare healthy menus. A non significant difference trending toward significant (p=0.056) between NAP SACC participants and non NAP SACC participants for the area of confidence to teach nutrition (Table 52). NAP SACC participants more often selected not at all confident (4.88%) compared to non NAP SACC participants (1.79%), but were also more likely to select confident (68.29%) compared to (47.7%) non NAP SACC participants. Non NAP SACC participants were

more likely to select very confident (24.11%) compared to (12.20%) NAP SACC participants. No significant differences were observed for IMIL participants versus non IMIL participants for self-efficacy scores (Table 53). No differences were observed between any groups for the areas of ability to gain children's interest in nutrition or ability to teach physical activity.

Table 50 : Comparison of Self-Efficacy Scores between Child Care Center and Home Care

	Center %	Home %	X2	p <value
How confident are you that you have adequate training to teach nutrition? (N=268)	(n=66)	(n=202)		
Not At All Confident	0.00	2.97	26.573	0.000*
Not Very Confident	24.24	3.96		
Not Sure	12.12	16.34		
Confident	43.94	53.96		
Very Confident	19.70	22.77		
How confident are you that you have the skills to safely prepare meals? (N=270)	(n=65)	(n=205)		
Not At All Confident	0.00	0.00	25.566	0.000*
Not Very Confident	6.15	0.00		
Not Sure	1.54	0.00		
Confident	44.62	26.83		
Very Confident	47.69	73.17		
How confident are you that you have the skills to create a healthy menu? (N=269)	(n=64)	(n=205)		
Not At All Confident	1.56	0.00	29.203	0.000*
Not Very Confident	3.13	0.49		
Not Sure	7.81	0.00		
Confident	43.75	31.22		
Very Confident	43.75	68.29		
How confident are you that you can interest children in learning about nutrition? (N=271)	(n=67)	(n=204)		
Not At All Confident	0.00	0.00	4.810	0.186
Not Very Confident	4.48	2.45		
Not Sure	26.87	16.18		
Confident	38.81	45.59		
Very Confident	29.85	35.78		
How confident are you in your ability to teach physical activity? (N=269)	(n=67)	(n=202)	4.349	0.361
Not At All Confident	1.49	0.50		
Not Very Confident	4.48	0.99		

Not Sure	8.96	9.90
Confident	41.79	47.03
Very Confident	43.28	41.58

***= Significant at p < 0.05**

Table 51 : Comparison of Self-Efficacy Scores between CACFP and Non CACFP Participants

	CACFP %	**Non%**	**X2**	**p < value**
How confident are you that you have adequate training to teach nutrition?				
(N=267)	(n=230)	(n=37)	16.301	0.003*
Not At All Confident	1.74	5.41		
Not Very Confident	6.52	21.62		
Not Sure	13.91	24.32		
Confident	54.35	35.14		
Very Confident	23.48	13.51		
How confident are you that you have the skills to safely prepare meals?				
(N=269)	(n=230)	(n=39)	14.699	0.002*
Not At All Confident	0.00	0.00		
Not Very Confident	0.87	5.13		
Not Sure	0.00	2.56		
Confident	28.70	43.59		
Very Confident	70.43	48.72		
How confident are you that you have the skills to create a healthy menu?				
(N=268)	(n=229)	(n=39)	18.931	0.001*
Not At All Confident	0.00	2.56		
Not Very Confident	0.44	5.13		
Not Sure	1.31	5.13		
Confident	32.31	43.59		
Very Confident	65.94	43.59		
How confident are you that you can interest children in learning about nutrition?				
(N=270)				
Not At All Confident	(n=231)	(n=39)	4.841	0.184
Not Very Confident	0.00	0.00		
Not Sure	3.03	2.56		
Confident	16.45	30.77		
Very Confident	44.59	41.03		
How confident are you in your ability to teach physical activity?	35.93	25.64		
(N=268)	(n=231)	(n=37)	1.593	0.810
Not At All Confident	0.87	0.00		
Not Very Confident	1.73	2.70		
Not Sure	10.39	5.41		
Confident	45.02	51.35		
Very Confident	41.99	40.54		

***= Significant at p < 0.05**

Table 52 : Comparison of Self-Efficacy Scores between NAP SACC and Non NAP SACC Particpants

	NAP SACC %	Non%	X2	p < value
How confident are you that you have adequate training to teach nutrition? (N=265)				
Not At All Confident	(n=41)	(n=224)	9.220	0.056
Not Very Confident	4.88	1.79		
Not Sure	2.44	10.27		
Confident	12.20	16.07		
Very Confident	68.29	47.77		
How confident are you that you have the skills to safely prepare meals? (N=267)	12.20	24.11		
Not At All Confident	(n=41)	(n=226)	0.939	0.816
Not Very Confident	0.00	0.00		
Not Sure	0.00	1.77		
Confident	0.00	0.44		
Very Confident	31.71	30.09		
How confident are you that you have the skills to create a healthy menu? (N=266)	68.29	67.70		
Not At All Confident	(n=41)	(n=225)	1.984	0.739
Not Very Confident	0.00	0.44		
Not Sure	0.00	1.33		
Confident	0.00	2.22		
Very Confident	39.02	33.33		
How confident are you that you can interest children in learning about nutrition? (N=268)	60.98	62.67		
Not At All Confident	(n=41)	(n=227)	0.226	0.973
Not Very Confident	0.00	0.00		
Not Sure	2.44	3.08		
Confident	17.07	19.38		
Very Confident	46.34	43.17		
How confident are you in your ability to teach physical activity? (N=266)	34.15	34.36		
Not At All Confident	(n=41)	(n=225)	1.056	0.901
Not Very Confident	0.00	0.89		
Not Sure	2.44	1.78		
Confident	9.76	9.78		
Very Confident	51.22	44.89		
	36.59	42.67		

***= Significant at p < 0.05**

Table 53 : Comparison of Self-Efficacy Scores between IMIL and Non IMIL Participants

	IMIL %	Non %	X2	p < value
How confident are you that you have adequate training to teach nutrition? (N=265)	(n=50)	(n=215)	5.979	0.201
Not At All Confident	2.00	2.33		
Not Very Confident	2.00	10.70		
Not Sure	10.00	16.74		

Confident	60.00	48.84		
Very Confident	26.00	21.40		
How confident are you that you have the skills to safely prepare meals?				
(N=267)	(n=53)	(n=214)	0.730	0.866
Not At All Confident	0.00	0.00		
Not Very Confident	1.89	1.40		
Not Sure	0.00	0.47		
Confident	33.96	29.44		
Very Confident	64.15	68.69		
How confident are you that you have the skills to create a healthy menu?				
(N=266)	(n=53)	(n=213)	1.040	0.904
Not At All Confident	0.00	0.47		
Not Very Confident	1.89	0.94		
Not Sure	1.89	1.88		
Confident	30.19	35.21		
Very Confident	66.04	61.50		
How confident are you that you can interest children in learning about nutrition?				
(N=268)	(n=52)	(n=216)	1.333	0.721
Not At All Confident	0.00	0.00		
Not Very Confident	1.92	3.24		
Not Sure	19.23	18.98		
Confident	38.46	44.91		
Very Confident	40.38	32.87		
How confident are you in your ability to teach physical activity?				
(N=266)	(n=51)	(n=215)	2.116	0.714
Not At All Confident	0.00	0.93		
Not Very Confident	0.00	2.33		
Not Sure	9.80	9.77		
Confident	50.98	44.65		
Very Confident	39.22	42.33		

***= Significant at p < 0.05**

Preferred Topics

Participants were asked to select topics of interest from a list of topics provided (Table 54). The top five topics were introducing new foods to picky eaters (n=162, 59.12%), preventing food waste (n=127, 46.35%), physical activity planning (n=127, 46.35%), nutrition education materials targeted to parents (n=99, 36.13%), and nutrition education materials targeted to children (99, 36.13%). The five topics least selected by participants included breastfeeding practices for child care participants (n=34, 12.41%),

menu planning for children with special needs (n=35, 12.77%), physical activity planning for children with special needs (n=38, 13.87%), infant feeding skills (n=43, 15.96%), and food safety (n=43, 15.69%). Additional topics written in by participants included preparation technique reminders, physical activity reminders, games, quick read materials, songs and music, typical daily routines, food amounts required by age, making infant food, cooking activities with children, and vegan menu planning.

Table 54. Nutrition and Physical Activity Topics of Interest (N=274)	**(n)**	**(%)**
Basic nutrition for kids	91	33.21
Breastfeeding practices for child care providers	34	12.41
Ethnic and cultural meal planning	52	18.98
Food safety procedures (washing, storage, etc.)	43	15.69
Food preparation techniques (cooking techniques)	59	21.53
Infant feeding skills	43	15.69
Introducing new foods to the picky eater	162	59.12
Introducing new foods to infants	64	23.36
Menu planning for children with allergies	64	23.36
Menu planning for children with special needs	35	12.77
Menu planning	76	27.74
Nutrition education materials targeted for parents	99	36.13
Nutrition education materials targeted for children	99	36.13
Playground safety	52	18.98
Preventing food waste	127	46.35
Physical activity planning	127	46.35
Physical activity for children with special needs	38	13.87

Methods of Training Ranking

Participants were asked to rank order one to six, with (one being most preferred six being least preferred) different types of training methods available (Table 55). A rank score was achieved by calculating frequency of response with a point value for each rank. The results yielded the following order of rank order: use of video training, use of

computer module training, use of book curriculum, group training off site, use of online seminar, and group training on site.

Table 55. Nutrition and Physical Activity Topics of Interest (N=173)	(n)	Ranked Score
Use of Video Training		
One	32	192
Two	43	215
Three	51	204
Four	21	63
Five	21	42
Six	5	5
Total Score		721
Use of Computer Module Training		
One	24	144
Two	36	180
Three	46	184
Four	27	81
Five	32	64
Six	8	8
Total Score		661
Use of Book Curriculum		
One	30	180
Two	23	115
Three	27	108
Four	50	150
Five	19	38
Six	24	24
Total Score		615
Group Training Off Site		
One	27	162
Two	28	140
Three	22	88
Four	20	60
Five	42	84
Six	34	34
Total Score		568
Online Seminar		
One	26	156
Two	27	135
Three	19	76
Four	38	114
Five	21	42
Six	42	42
Total Score		565
Group Training On Site		
One	34	204
Two	16	80
Three	8	32
Four	17	51
Five	38	76
Six	60	60
Total Score		503

Equipment Access

To determine what types of training materials can be utilized in child care settings, we asked participants about access to television, DVD players, computers, and the internet (Table 56). Television and DVD access was reported by 90% of participants (n= 259, 94.5%). Computers were available to the majority of participants (n=238, 86.1%). Internet access was the least reported but was still available to the majority of participants (n=233, 85%). This information provides knowledge of resources available for training.

Table 56. Participant Access to Equipment (N=274)	(n)	(%)
Television	259	94.5
DVD	259	94.9
Computer	236	86.1
Internet	233	85.0

Mail versus Electronic-mail

To determine if it would be beneficial to obtain electronic mail addresses during licensure participants were asked if they would prefer to receive surveys through mail or electronic mail (Table 57). The majority of the participants responded by saying they would prefer mail surveys (n=214, 79.9%) compared to electronic mail (n=44, 16.4%). Some participants wrote in either mail or electronic mail (n=10, 3.7%). The amount of participants preferring mail survey may be in part due to filling out a mailed survey. When asked for a preferred contact method for the prize drawing over half of participants were willing to give an electronic mail address (n=143, 59.83%).

Table 57. Preferred Method of Survey Distribution for Participants (N=268)	(n)	(%)
Mail	214	79.9
Electronic Mail	44	16.4
Either	10	3.7

Chapter IV. CONCLUSION

Discussion

The results of this survey represent 274 child care providers from centers and home care facilities, caring for 6,334 Nebraska children across all regions. While many participants are meeting recommended guidelines, nutrition education, nutrition policy, milk offered for children 12 to 24 months, physical activity policy, and physical activity education were found to be areas for improvement. Child care facilities have opportunities to educate both parents and children which may impact food and physical activity behavior choices. These opportunities are not being utilized by the majority of providers. To impact children in child care settings, providers, parents, and health professionals must work together to focus on education and healthy behavior change.

Previous research has found short falls in dietary intake of young children. Ball, Benjamin, and Ward, 2008 found recommendations were not being met for grains, fruits, vegetables, and protein (17). Diet intake of children in the Feeding Infant and Toddlers study of 2008 suggested only 70% of two and three year old consumed vegetables once per day, 87% consumed fruit once per day, and only 9.2% consumed whole grains once per day (9). A study by Padget and Briley, 2005 found over half of children were meeting recommendations for grains, fruits, and dairy (18). In our study these food groups were more frequently offered. For the lunch meal alone vegetables were offered 99.6% of the time and fruit was 98.1% of the time. Whole grains were offered once per day by 41.95% of participants. Sweet consumption was also less in our study with 22.22% of participants offering sweets once per day compared to a previous study finding 85.8% of children

consuming sweets once per day (9). Several factors may explain why the results of this study indicated higher amounts of food group intake. This study was self-report data versus direct observations. Several years have elapsed between the previous studies and this study allowing for increased health awareness and government guidelines to change.

Previous research showed different results from this study for the area of training for child care providers of child care centers versus home based facilities. Kim, Shim, Wiley, Kim, and Mcbride, 2012 found child care centers received more training for nutrition (81.9%) compared to home care facilities (58.6%) and for physical activity (66.7%) compared to (43%), however home care participants also perceived higher influence on health than child care centers (21). In this study child care centers received higher scores for physical activity training, while home care participants scored better for nutrition education training and also reported higher self-efficacy scores. Scores for meals and snacks and beverages were mixed with child care centers scoring higher for whole grains and breaded meats and milk provided to children 12 to 24 months, but home care participants scoring higher in the area of serving lean meats and milk provided to children over 24 months. Scores were also mixed for feeding practice questions with participants from child care centers being more likely to have a nutrition policy but less likely to serve meals family-style than home care participants. Home care participants were more likely to store and prepare breast milk, however participants from centers were more likely to provide on-site arrangements for breastfeeding.

Participants frequently reported participation in the CACFP program, however participation in other programs NAP SACC and IMIL were less. Participation in the

CACFP program appears to positively impact scores for nutrition education, meals and snacks, food safety training, beverages, and food groups served for lunch and dinner. These findings are similar to previous findings which suggest children in CACFP consumed more protein, milk, and vegetables than non CACFP controls (23). NAP SACC participation positively impacted serving low fat milk to children over 24 months and time spent in infant equipment. These results were different than previous findings that NAP SACC participants scored higher in areas of nutrition and physical and activity than controls (25). NAP SACC participants may be more aware of current practices due to completion of the self-assessment than non NAP SACC participants which could allow for more accurate responses from NAP SACC participants compared to non NAP SACC participants. Previous research of Head Start Programs found increased scores for the domains of nutrition education, nutrition standards, promotion of healthy eating, physical activity, and communication (29). Head start programs typically participate in IMIL. In this study IMIL participation only positively impacted physical activity education for staff.

Previous research of food safety and feeding practices shows both similarities and differences from this research. Gubbels, Kremers, Stafleu, Dagnelie, de Vries, and Thijs, 2010, found children ate more when staff ate with them and that food being used as a punishment was not observed more than twice per meal (15). In this study we found most staff (77.7%) ate with the children and food was not often used as a reward or punishment (1.5%). Enke, Briley, Curtis, Greninger, and Staskel 2006 found 16% of

employees were trained in food service (27). In our study 65% of participants received food safety training.

When considering future training of child care providers the variability of provider needs should be considered. Responses of preferred training methods revealed that providers prefer to learn in different ways. Training methods were ranked in the following order: use of video training, use of computer module training, use of book curriculum, group training off site, use of online seminar, and group training on site. The majority of participants however did have access to television, DVD player, computer, and internet. These findings suggest that it would be beneficial for educational programs to utilize a variety of methods. Participants were most interested in learning about introducing new foods for picky eaters, preventing food waste, physical activity planning, nutrition education materials targeted to parents, and nutrition education materials targeted to children.

While many programs are available to Nebraska child care providers, these programs may not be adequately communicated to providers. Although the majority of participants responded they preferred to receive mail surveys, participants frequently supplied an electronic mail address as preferred contact. Giving providers an option of providing an electronic mail address upon licensure for purposes of receiving training notification would improve communications between these program managers and providers.

Child care providers are currently required to receive continuing education hours, however these hours are not required to be nutrition or physical activity related. As

reported in previous research Nebraska does not have regulations for water availability, sugar sweetened beverages, limits on food of low nutrient value, forcing children to eat, using food as a reward of punishment, support for breastfeeding, screen time, or physical activity (19). In the areas of infant feeding, Nebraska only regulates child care centers for feeding according to parent and physician plan, and holding infants while feeding and home care facilities for holding infants while feeding (20). More comprehensive regulations for child care providers for nutrition and physical activity at a state level may need to be considered to improve the health of Nebraska children under the care of a child care provider.

Limitations

Some limitations exist for this study. Not all licensed providers in the State of Nebraska had the opportunity to complete the survey, therefore a stratified sample was used as the best way to obtain a representative population of child care providers. Licensure type of each child care provider was not determined on the survey. For the purposes of the study provider type was categorized as child care center or home care provider. In Nebraska child care providers are further categorized into Family Child Care Home I and Family Child Care Home II. Therefore, home care providers may have been oversampled when compared to child care centers. The survey instrument did not request information on operating hours of each facility. Operating hours would dictate meal requirements which may impact scores. The results were self-report data which allows participants to answer questions based on what they thought was correct practices versus what they actually do. Also, participants may not have understood all of the material, as

several participants responded that they were unaware of what screen time or tummy time were.

Future Research

From this study it is unclear what barriers exist for child care providers in the areas of nutrition and physical activity training. Although several participants wrote in comments about time and staffing constraints the focus of this study did not address why providers did not participate in programs or what changes would improve compliance to existing guidelines. Future research could add to the findings of our study. Review of provider's weekly menus would allow comparison between reported menu selections and actual planned menu selections. Menu reviews may more accurately illustrate what Nebraska children are eating while in the child care setting. Focus groups with child care providers of various licensing types in various locations would provide a better understanding of issues impacting child care provider's to provide nutrition education and physical activity for the children in their care.

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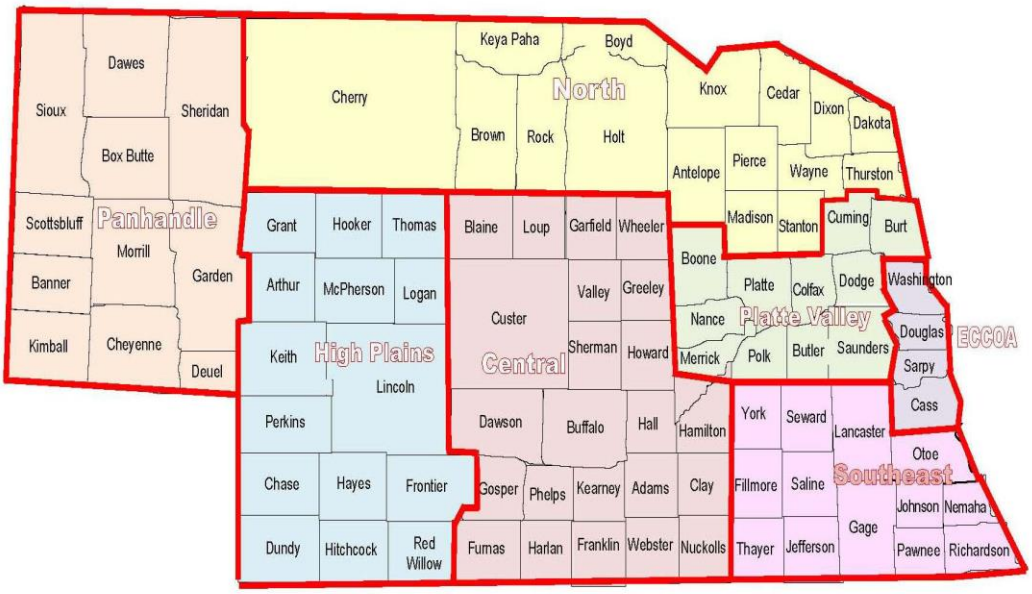
A-1 Early Learning Connection Partnership Map of Geographical Regions in NE

Early Learning Connection Partnership Map of Geographic Regions in Nebraska



http://www.education.ne.gov/oec/elc/elc_list.html

A-2 IRB Approval Letter

Tracy Delaney

Graduate Studies

Wanda Koszewski

Department of Nutrition and Health Sciences

119A LEV, UNL, 68583-0806

IRB Number: 20120812803 EX

Project ID: 12803

Project Title: Assessment of the Nutrition and Physical Activity Education Needs of Child Care Providers Across Nebraska

Dear Tracy:

This letter is to officially notify you of the certification of exemption of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46) and has been classified as Exempt Category 2.

You are authorized to implement this study as of the Date of Exemption Determination: 08/08/2012.

1. The approved informed consent document has been uploaded to NUgrant (file with -Approved.pdf in the file name). Please use this document to distribute to participants. If you need to make changes to the informed consent form, please submit the revised document to the IRB for review and approval prior to using it.

We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

* Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;

* Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;

* Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;

* Any breach in confidentiality or compromise in data privacy related to the subject or others; or

* Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

This project should be conducted in full accordance with all applicable sections of the IRB Guidelines and you should notify the IRB immediately of any proposed changes that may affect the exempt status of your research project. You should report any unanticipated problems involving risks to the participants or others to the Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

Becky R. Freeman

Becky R. Freeman, CIP

for the IRB

A-3 Informed Consent Letter

University of Nebraska Lincoln

COLLEGE OF EDUCATION AND HUMAN SCIENCES
Department of Nutrition and Health Sciences

Dear Child Care Provider,

My name is Tracy Delaney. I am a University of Nebraska Lincoln Graduate Student, conducting a study on nutrition and physical activity in the child care environment. The purpose of this research is to develop future training and resources for child care providers. If you are a licensed child care provider in the state of Nebraska you may participate in this research.

Participation in this study will require approximately twenty minutes of your time. You will be asked to answer the survey questions and mail the survey back in the self-addressed pre-paid envelope. You also have the opportunity to provide your name and either phone or e-mail address to be entered into a random prize drawing for one of five $50 dollar gift certificates to be used to purchase education items. We will invite 1000 people to participate. If all 1000 child care providers chose to participate, you will have a 1 out of 200 chance of receiving a gift card. There are no known risks or discomforts associated with this research. The information shared will be reported as aggregate data with no individual results reported.

The results of this study will be used to create future programming for child care providers in the areas of nutrition and physical activity.

Your responses to this survey will be kept confidential. All data will be available to only the primary and secondary research and will be stored in a secured location.

You may ask any questions concerning this research at anytime by contacting Tracy Delaney at 660-238-0364 or tracycdelaney@gmail.com . You may also reach Dr. Wanda Koszewski at 402-472-7966 or wkoszewski1@unl.edu. If you would like to speak to someone else, please call the Research Compliance Services Office at 402-472-6926 or irb@unl.edu.

Participation in this study is voluntary. You can refuse to participate or withdraw at any time without harming your relationship with the researchers or the University of Nebraska-Lincoln, or in any other way receive a penalty or loss of benefits to which you are otherwise entitled.

You are voluntarily making a decision whether or not to participate in this research study. By completing and submitting your survey responses, you have given your consent to participate in this research.

Thank you,

Tracy Delaney

A-4 Nutrition Needs Assesssment Survey Instrument

Nutrition and Physical Activity Survey for Child Care Providers in Nebraska

Dear Child Care Provider,

You are invited to participate in a survey about nutrition and physical activity policies and programming in your child care facility. This is a voluntary survey. Your completion will imply consent to participate in the study. All identifying information will be kept confidential. If you choose to complete the survey you will be entered in a random prize drawing for one of five $50 dollar gift certificates. To be entered into the prize drawings, please write in your preferred contact information at the bottom of the survey. The information gathered will be used to develop future training and resources for child care providers. Please return this survey in the envelope provided by **September 30, 2012**. Thank you for your time and opinions.

Facility Information:

Which best describes your facility? (select one): In Home Care Child Care Center Other (list):		
What zip code is your facility located in?_____	**How many children are you licensed to care for?_____**	**How long have you been providing child care?_____**
How many children ages 0-3 years do you care for?_____	**How many children over 3 years do you care for?_____**	**What is the current age of the primary provider?_____**
What languages are spoken at your facility? (select all that apply): English Spanish Other(list):		
Do you participate in the Child and Adult Care Food Program? Yes No		

Nutrition Education:

How often are training opportunities on nutrition (other than food safety and food program guidelines) provided for you or staff?	Never	Less than 1 time per year	1 time per year	2 times or more per year
How often is nutrition education provided to parents (workshops, activities and take home materials)?	Never	Less than 1 time per year	1 time per year	2 times or more per year
How often is nutrition education provided to children through standardized curriculum?	Never	1 time per year or less	1 time per month	1 time per week or more

Meals and Snacks:

How often are whole grains (100% whole wheat, oatmeal, pasta, brown rice, tortillas, etc.) offered?	Never	Less than 1 time per week	1 time per week	Once a day	2 or more times per day
How often are breaded meats (chicken	Never	Less than 1 time	1 time	Once a day	2 or more

nuggets, fish sticks, etc.) offered?		per week	per week		times per day
How often are beans or lean meats offered?	Never	Less than 1 time per week	1 time per week	Once a day	2 or more times per day
How often are salty or sweet snacks offered?	Never	Less than 1 time per week	1 time per week	Once a day	2 or more times per day
How often are pre-fried potatoes (tater-tots, french fries, etc.) offered?	Never	Less than 1 time per week	1 time per week	Once a day	2 or more times per day

In a typical breakfast, which of the following foods are offered? (Select all that apply)	Fruit	Vegetable	Meat or Protein	Grain	Dairy	Sweet*
In a typical lunch/dinner, which of the following foods are offered? (Select all that apply)	Fruit	Vegetable	Meat or Protein	Grain	Dairy	Sweet*
In a typical morning snack, which of the following foods are offered? (Select all that apply)	Fruit	Vegetable	Meat or Protein	Grain	Dairy	Sweet*
In a typical afternoon snack, which of the following foods are offered? (Select all that apply)	Fruit	Vegetable	Meat or Protein	Grain	Dairy	Sweet*

*Sweet = donut, snack cake, cookie, toaster pastry, etc.

Beverages:

Is water easily available for children to serve themselves inside? Yes No				
Is water easily available for children to serve themselves outside? Yes No				
Which type of milk is served to children 12 to 24 months?	1% or Skim milk	2% milk	Whole milk	Other(please list):
Which type of milk is served to children over 24 months?	1% or Skim milk	2% milk	Whole milk	Other(please list):

How often is 100% juice offered?	Never	More than once a week	One time per day	More than one time per day
How often are sugary drinks (soda, sports drinks, fruit drinks that are not 100% juice) offered?	Never	More than once a week	One time per day	More than one time per day

Are staff required to receive food safety training? Yes No				
Are menus provided for parents? Yes No Only on Request				
How are menus planned?	In House	By an Outside Vendor	Menus are Unplanned	Other (please list):
Please indicate which of the following conditions receive dietary accommodations. (Select all that apply)	Allergies	Religion	Physical Impairment	Vegetarian Diets

Menu/Food Preparation:

Feeding Practices:

Do you or your staff eat with the children?	Yes	No
Are meals served family style? (Food on table kids/staff serve self)	Yes	No
Is food used as reward or punishment?	Yes	No
Are healthy options encouraged to be brought in for celebrations and holidays?	Yes	No
Do you have a written nutrition policy?	Yes	No

Infant Feeding: (Skip to next section if you don't provide care for infants.)

Are you willing to store and prepare breast milk?	Yes	No	
Do you provide onsite arrangements for mothers to breastfeed?	Yes	No	
Do you develop plans with parents for introduction of solid foods?	Yes	No	
How is infant formula provided?	Facility	Parents	Not Applicable
When do you typically introduce age-appropriate solid foods?	Before 4 months	Between 4 and 6 months	6 months or later
Infants are typically fed?	Following a Schedule	On demand	

Physical Activity:

Do you have a physical activity policy?			Yes	No
Do you withhold activity from children whom misbehave?			Yes	No
Do infants receive daily tummy time?			Yes	No
How often are training opportunities on physical activity provided for staff?	Never	Less than 1 time per year	1 time per year	2 times or more per year
How often is physical activity education provided to children through standardized curriculum?	Never	One time per year or less	One time per month	One time per week or more
How many minutes of active play time do children receive per day?	5 minutes	6-30 minutes	31-60 minutes	61 or more minutes
In a typical day, what types of physical activity do children do? (Select all that apply)	Outdoor Free Play	Outdoor Instructed	Indoor Free Play	Indoor Instructed
How many minutes of screen time are allowed per day?	5 minutes or less	6-60 minutes	61-120 minutes	More than 120 minutes
How many minutes per day do infants spend in equipment (swings, bouncers, etc)?	5 minutes or less	6-60 minutes	61-120 minutes	More than 120 minutes

Please place a check mark in the appropriate box					
	Not at all Confident	**Not Very Confident**	**Not Sure**	**Confident**	**Very Confident**
How confident are you that you have adequate training to teach nutrition ?					
How confident are you that you have the skills to safely prepare meals?					
How confident are you					

that you have the skills to create a healthy menu?					
How confident are you that you can interest children in learning about nutrition ?					
How confident are you in your ability to teach physical activity?					

Have you participated in "Nutrition and Physical Activity Self-Assessment for Child-Care" (NAP SACC)? Yes No
Have you participated in "I am Moving, I am Learning" (IMIL)? Yes No

Which of the following do you have access to at your facility? (Select all that apply)	TV	DVD player	Computer	Internet

How would you prefer to receive future surveys?	Mail	E-mail

Please place a check on any topic below you would be interested in learning more about?

____Basic nutrition for kids
____Breastfeeding practices for child care providers
____Ethnic and cultural meal planning
____Food safety procedures (washing, storage, etc)
____Food preparation techniques (cooking techniques)
____ Infant feeding skills

____ Introducing new foods to the picky eater
____Introducing new foods to infants
____Menu planning for children with allergies
____Menu planning for children with special needs
____Menu planning
____Nutrition education materials targeted for parents
____Nutrition education materials targeted for children
____Playground safety
____Preventing food waste
____Physical activity planning
____Physical activity for children with special needs
Please list any other topic ideas:_____

If you were to receive training related to nutrition and physical activity which methods would you prefer? Please rank from 1 to 6, with 1 being the most preferred and six being the least preferred.
_____Group training on site
_____Group training off site
_____Use of book curriculum
_____Use of video training
_____Use of computer module training
_____Online seminar
Please list any other training methods of interest not listed above:_____

Preferred contact information for prize drawing

First Name:_____

(E-mail or Phone Number:_____