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Improving the Physical Activity and Outdoor Play Environment of Family Child Care Homes in Nebraska Through Go Nutrition and Physical Activity Self-Assessment for Child Care

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Abstract

Background: The purpose of this study was to determine if the Go Nutrition and Physical Activity Self-Assessment in Child Care (Go NAP SACC) intervention was effective in improving best practices in the areas of infant and child physical activity and outdoor play and learning in family child care homes (FCCHs) in Nebraska. **Methods:** FCCHs (n = 201) participated in a pre- post evaluation using the Infant and Child Physical Activity and Outdoor Play and Learning assessments from the Go NAP SACC validated measure to assess compliance with best practices. **Results:** At post, FCCHs demonstrated significant differences in 85% of the Infant and Child Physical Activity items (17 of 20) and 80% of the Outdoor Play and Learning items (12 of 15). Significant differences in best practices between urban and rural FCCH providers were also found. **Conclusion:** Go NAP SACC appears to be an effective intervention in Nebraska as, after participation in the initiative, providers were improving child care physical activity best practices. Additional research is needed to objectively determine if these changes resulted in objective improvements in children's physical activity levels. Further, efforts are needed to develop and/or identify geographic-specific resources for continued improvement.

Keywords: pediatrics, program evaluation, active play, urban, rural

Early childhood is a critical time period for developing physical activity behaviors.¹ During this time, ~74% of all 3- to 6-year-old children in the United States are in some form of nonparental care, and children 3 years old and younger spend an average of 29 hours per week in child care with a nonrelative.² Thus, child care is one environment contributing to children's development of habits and attitudes toward physical activity, a behavior contributing to the prevention of obesity.³⁻⁵ Childhood overweight and obesity are associated with the development of chronic disease in adults.^{6,7} Improving the child care environment is a promising venue to increase physical activity levels and potentially prevent chronic diseases.⁸

The Go Nutrition and Physical Activity Self-Assessment for Child Care (Go NAP SACC) is one existing evidence-based program for improving health outcomes through physical activity and nutrition policies and practices in child care centers and homes using a 5-step approach.^{4,9,10} Go NAP SACC offers training and resources to early care and education providers to achieve best practices in 5 core areas: (1) child nutrition, (2) breastfeeding and infant feeding, (3) infant and child physical activity, (4) outdoor play and learning, and (5) screen time, with an optional oral health focus.¹⁰ Go NAP SACC has been effective at improving nutrition and physical activity in the child care setting; however, a majority of these studies were conducted in child care centers.¹¹⁻¹³ Specifically, increases seen in individual child care centers have led to broader local and state efforts toward improving nutrition and physical activity in children, such as the development of Quality Rating and Improvement Systems and updates to state licensing for child care.^{12,13}

Few studies have reported on the effectiveness of Go NAP SACC in family child care homes (FCCHs) explicitly. FCCHs are defined as child care provided in a professional caregivers' home.¹⁴ Currently in Nebraska, there are almost 3 times as many FCCHs (n = 2151) as there are child care centers (n = 719) that care for children between 3 months and 5 years of age.¹⁵ FCCHs differ slightly from child care centers as they typically have fewer staff and financial resources. Previous NAP SACC research in FCCHs found significant improvements in physical activity policies and practices using self-assessments.¹³ Delaney et al¹⁶ suggested that additional provider characteristics, such as urban or rural location, are needed to determine appropriate recom-

mendations for policy and practice to provide important contextual information for providers. Further, in Nebraska, a majority of FCCHs are in rural areas. This is concerning, as rural populations often encounter greater health disparities compared with their urban counterparts.¹⁷ Therefore, the primary purpose of this study was to determine if Go NAP SACC was effective in improving best practices in 2 physical activity areas: infant and child physical activity and outdoor play and learning in FCCHs in Nebraska. A secondary purpose was to determine differences between best practices in FCCHs located in urban and rural areas in Nebraska.

Methods

This pre–post intervention study examined changes in physical activity best practices in FCCHs (n = 201) who provided care to children up to 5 years of age and completed Nebraska Go NAP SACC between August 2014 and August 2016. This study was exempt from approval by the University of Nebraska–Lincoln institutional review board.

Nebraska Go NAP SACC

In Nebraska, collaborative efforts to provide Go NAP SACC to child care homes and centers have been occurring since 2010. Nebraska first brought Go NAP SACC to the state in 2010 when the Nebraska Department of Health and Human Services received funding from the Centers for Disease Control and Prevention to improve environments in early child care education facilities. In 2011, Nebraska Department of Education’s Team Nutrition Program received a US Department of Agriculture (USDA) grant to pilot it in child care centers. From the success found in those grants, additional partners, such as the Child and Adult Care Food Program (CACFP) Sponsor Organizations, Nebraska Extension, local health departments, health care systems, and local nonprofit agencies, also came to the table to help expand Go NAP SACC–related efforts across the state. Since the beginning of Go NAP SACC, over 1000 providers have received training. Currently, there are almost 30 Nebraska Go NAP SACC trainers statewide.

Sample

FCCH providers in all 93 Nebraska counties (average of 2275 providers per year) were eligible to participate in GO NAP SACC. Approximately 3 months prior to offering a training, providers were recruited through e-mails and newsletters from regional education service units, trainer organizations (CACFP sponsors, health departments, health care organizations, etc.), the Nebraska Go NAP SACC online training calendar, the Nebraska Department of Education's Early Childhood Professional Record System, and word of mouth. If an FCCH was interested in participating, they contacted the trainer for the specific training they were registering for, which was included on the advertisement, to receive additional information, identify a training, and confirm their interest.

Once providers agreed to participate, they completed the online preassessment,¹⁸ hosted through a secure online server at the University of Nebraska–Lincoln (step 1). Next, providers took part in a training for themselves and their staff (if applicable; step 2). The 6-hour in-person training, which was developed by Go NAP SACC and modified by partners to make it specific to Nebraska, focused on child and adult obesity; child nutrition, physical activity, personal health and wellness; working with families; and breastfeeding and infant feeding. Trainings were typically held for a single 6-hour time period on a Saturday. Approximately one and a half hours of each training was spent on physical activity–related items. The physical activity portion of the training focused on describing the importance of providing active play opportunities, specific components of the environment that help to encourage activity (best practices), the role of child care staff in helping to develop active lifestyles, and identifying actionable items they could implement in their FCCH. Trainings were interactive and included example physical activities, along with discussions among providers. Step 3 consisted of an individual meeting with the Nebraska Go NAP SACC trainer to review the preassessment, identify areas they would like to improve, and set goals. Over the next, ~3 to 4 months, trainers provided technical assistance on the phone, via e-mail, or in person to the providers to help them achieve their goals (step 4). Once the provider had met their goals, their trainer encouraged them to complete the postassessment (step 5). The entire process took on average of 4 to 5 months. After completion of the postas-

assessment, providers received their training certificate for the approved hours, as well as their incentives for participating in the program.

Participating FCCH providers who completed Nebraska Go NAP SACC trainings received 6 in-service hours, which helped them to meet their requirements for Nebraska child care licensing. They also received nutrition and physical activity-related teaching tools after they completed the program (e.g., physical activity materials, such as the animal trackers curriculum, fitness dice, parachutes, activity mats) based on their needs. Annual in-service/professional development opportunities were provided for trainers in the summer of 2015 and 2016.

Measures

To address physical activity environments, 2 of the 5 GoNAP SACC sections were assessed: the Infant and Child Physical Activity section, which consists of 20 questions based on 5 categories (time provided, indoor play environment, daily practices, educational and professional development, and policy), and the Outdoor Play and Learning section, which consists of 15 questions based on 4 categories (outdoor play-time, outdoor play environment, educational and professional development, and policy). The Go NAP SACC self-assessment tool has been widely used and previously validated.^{12,13,19} Answers were based on a 4-point Likert scale. Answers varied based on the question and were coded as 1 = marginally meeting child care standards, 2 = meeting child care standards, 3 = exceeding child care standards, and 4 = far exceeding child care standards and using best practice based on Go NAP SACC recommended best practices.¹³

Statistical Analysis

Using the results from the Go NAP SACC preassessment and postassessment for the 2 physical activity-related sections, descriptive statistics were calculated. The data's normality was assessed using the Kolmogorov-Smirnov test. A Kolmogorov-Smirnov test and a visual inspection of their histograms, normal quantile-quantile (Q-Q) plots, and box plots showed that the scores of physical activity and outdoor play of FCCHs were normally distributed ($P > .05$); therefore, we could use the parametric statistical methods, the paired-sample t test, and

linear regression analysis. A paired-sample *t* test was conducted to examine the differences in Go NAP SACC scores from pretest to posttest. A multivariate analysis of covariance was used to determine where there were any statistically significant differences between the adjusted means of physical activity best practices at FCCHs in rural communities compared with urban communities, having controlled for a CACFP participation. For the purpose of this study, counties were used as a basis for rural–urban designation into 1 of the 3 categories of metropolitan, micropolitan, and rural.²⁰ Metropolitan status was defined as any area with a population of 50,000 or more residents ($n = 2$ counties), and additional 7 of which were metropolitan “outlying” counties ($n = 7$). Micropolitan status was defined as an area with a population of 10,000 or more residents ($n = 10$). Rural status consisted of any population smaller than micropolitan ($n = 74$). For the purpose of the analysis and consistent with other literature, micropolitan and rural counties were combined to be able to compare differences across urban (metropolitan) and rural (micropolitan and rural).^{21,22} All analyses were conducted using the statistical software package IBM Statistical Package for Social Sciences (SPSS; version 21; Armonk, NY).

Results

Basic demographics about participating FCCHs are presented in Table 1. A total of 350 providers began an assessment in the online database, but only 201 providers completed both preassessment and postassessment and thus were used for analysis. Of those who completed, 2268 children from different age groups received care from these FCCHs. Overall, 55.7% of child care settings were located in rural areas. (Note: All the school-aged children were excluded from the analysis.) At baseline, on average, FCCHs met the minimum standards for all areas of the assessment. The questions with the lowest average score were in regard to having a written policy for physical activity (2.29, $SD = 0.42$) or outdoor play (2.14, $SD = 0.43$), offering families information on outdoor play and learning (2.16, $SD = 0.43$), and having a garden in the outdoor play area (1.91, $SD = 0.40$). At post, FCCHs demonstrated significant increases in meeting best practices in 85% of the Infant and Child Physical Activity topics (17 of 20) and 80% of the outdoor play and learning topics (12 of 15).

Table 1. Characteristics of FCCHs Facilities

	<i>n</i>	<i>Total</i>	<i>N %</i>
No. of providers who completed	201	350	57.40
Total no. of children		2068	
0–23 mo	483		23.40
24–35 mo	664		32.10
3–5 y	921		44.50
No. of children in urban	1051		50.80
No. of children in rural	1017		49.20
CACFP participation	166	201	82.60
Residence/location		201	
Urban classification	89		44.30
Rural classification	112		55.70

Abbreviations: CACFP, Child and Adult Care Food Program; FCCH, family child care home.

Infant and Child Physical Activity

With respect to infant and child physical activity, significant improvements were found in all 5 categories: time provided (4 of 5), indoor play environment (3 of 4), daily practices (2 of 4), educational and professional development (6 of 6), and policy (1 of 1) (Table 2). It is important to note that the 3 questions in which a significant difference was not found had a reasonably high score at baseline (>3). The largest improvements were found in the frequency of offering families information on children's physical activity from an average of less than 1 time per year (2.3, SD = 0.44) to 1 time per year (3.04, SD = 0.52), and this information was more likely to cover 2 to 3 physical activity-related topics (i.e., recommended amounts, motor skill development) in comparison with just 1 topic.

Ten areas were still below 3.5 indicating that they were not exceeding child care standards and meeting best practice. The lowest of these areas included offering tummy time to noncrawling infants; the amount of adult-led physical activity; the amount of time outside of naps and meals that infants spent in seats, swings, or exersaucers; the program's variety of posters, books, and other learning materials that promote physical activity; the use of physical activity during daily routines, transition, and planned activities; informally talking to children about the benefits of physical activity; completing professional development on physical activity; offering families information

Table 2. Infant and Child Physical Activity Items (n = 201)

	<i>Pre</i>	<i>Post</i>	<i>P value</i>
Time provided			
Amount of daily time provided for children's indoor and outdoor physical activity	3.19 (0.23)	3.52 (0.33)	.03*
Offering tummy time to noncrawling infants	2.94 (0.51)	3.25 (0.54)	<.01**
Amount of daily adult-led physical activity provided	2.84 (0.46)	3.18 (0.30)	<.01**
Amount of time children are asked to remain seated at any one time	3.50 (0.32)	3.65 (0.43)	.26
Amount of time infants spend in seats, swings, or exersaucers	2.48 (0.25)	2.84 (0.34)	<.01**
Indoor play environment			
Availability of indoor portable play equipment in good condition	3.37 (0.52)	3.63 (0.41)	<.01**
Offering portable play equipment to children during indoor free play time	3.27 (0.31)	3.60 (0.36)	<.01*
Offering developmentally appropriate portable play equipment to infants	3.68 (0.67)	3.79 (0.73)	.67
Availability/variety of a collection of posters, books, and other learning materials that promote physical activity	2.33 (0.41)	2.93 (0.48)	<.01**
Daily practices			
Removal of children from active playtime for longer than 5 min	3.39 (0.62)	3.55 (0.67)	.38
Supervising, verbally encouraging, and participating in children's physical activity	3.29 (0.59)	3.55 (0.64)	.04*
Interacting with infants to help build motor skills	3.43 (0.68)	3.59 (0.71)	.07
Using physical activity during daily routines, transitions, and planned activities	3.04 (0.43)	3.44 (0.47)	<.01**
Education and professional development			
Leading planned lessons for children focused on building gross motor skills	3.34 (0.54)	3.62 (0.56)	<.01**
Talking with children informally about the importance of physical activity	2.95 (0.48)	3.44 (0.59)	<.01**
Completing professional development on children's physical activity	2.71 (0.31)	3.21 (0.38)	<.01**
Covering a variety of topics as part of this professional development	3.30 (0.53)	3.70 (0.64)	<.01**
Offering families information on children's physical activity	2.30 (0.44)	3.04 (0.52)	<.01**
Offering families a variety of information on children's physical activity	2.57 (0.46)	3.35 (0.63)	<.01**
Policy			
Having a written policy on physical activity including a variety of topics	2.29 (0.42)	2.97 (0.49)	<.01**

Data are presented as mean (SD). Scores reported on a 4-point Likert scale, with 1 being marginally meeting child care standards and 4 being far exceeding child care standards and using best practice. The actual answer options differed depending on question.

* $P < .05$; ** $P < .01$

on a variety of physical activity topics; and their program's policy on physical activity included more than 6 of the best practice topics (i.e., amount of time provided, limiting long periods of seated time).

Outdoor Play and Learning

With respect to outdoor play and learning, significant improvements were found in all 4 categories: outdoor playtime (3 of 3), outdoor play environment (2 of 7), education and professional development (4 of 4), and policy (1 of 1) (Table 3). Similar to the previous findings, those questions that did not have significant improvements had reasonably high baseline scores. The largest improvements were again found in offering families information on outdoor play and learning

Table 3. Outdoor Play and Learning Items (n = 201)

	Pre	Post	P value
Outdoor playtime			
Providing outdoor play time	3.12 (0.41)	3.59 (0.64)	<.01**
Providing 60 min or more outdoor play time	3.33 (0.52)	3.68 (0.56)	<.01**
Using the outdoors for a variety of activities (free play, structured learning opportunities, seasonal outdoor activities, walking trip, or field trips)	3.41 (0.67)	3.62 (0.72)	.04*
Outdoor play environment			
Providing ample shade in the outdoor play space	3.24 (0.32)	3.32 (0.47)	.15
The open area used for outdoor games and group activities is large enough for all children	3.82 (0.76)	3.88 (0.79)	.34
Offering a variety of outdoor play spaces	3.05 (0.39)	3.40 (0.55)	<.01**
The garden in the outdoor play space grows fruits and/or vegetables for children's meals and snacks	1.91 (0.40)	2.36 (0.45)	<.01**
Providing a variety of portable play equipment in good condition	3.51 (0.61)	3.62 (0.68)	.12
Offering children portable play equipment during outdoor active playtime	3.58 (0.65)	3.72 (0.70)	.21
Offering enough portable play equipment so that it is available for each child	3.70 (0.69)	3.77 (0.74)	.39
Education and professional development			
Completing professional development on outdoor play and learning	2.45 (0.38)	3.14 (0.44)	<.01**
Covering a variety of topics as part of this professional development	2.95 (0.53)	3.52 (0.62)	<.01**
Offering families information on outdoor play and learning	2.16 (0.43)	2.93 (0.47)	<.01**
Offering families a variety of information on outdoor play and learning	2.43 (0.45)	3.25 (0.54)	<.01**
Policy			
Having a written policy on outdoor play and learning including a variety of topics	2.14 (0.43)	2.88 (0.49)	<.01**

Data are presented as mean (SD). Scores reported on a 4-point Likert scale, with 1 being marginally meeting child care standards and 4 being far exceeding child care standards and using best practice. The actual answer options differed depending on question.

* $P < .05$; ** $P < .01$

topics, moving from an average of less than 1 time per year (2.16, SD = 0.43) to 1 time per year (2.93, SD = 0.47), and providing a written policy including 3 to 5 topics (2.88, SD = 0.49) compared with 1 to 2 topics (2.14, SD = 0.49). There were 6 areas that still had the greatest room for improvement, the lowest of which included: amount of outdoor space that is shaded; offering a variety of play areas; providing and growing food within a garden; completing professional development on outdoor play and learning; offering families information on outdoor play more frequently; and including more topics within their written outdoor play and learning policy.

Urban and Rural Variation

When examining differences between urban and rural providers, significant differences were found in 20% of the Infant and Child Physical Activity items (4 of 20) and ~13% of the Outdoor Play and

Table 4. Significant Effects for Physical Activity and Outdoor Play in Rural and Urban Communities (at $P < .05$ Level)

<i>Dependent variable</i>	<i>df</i>	<i>df error</i>	<i>F</i>	<i>Location</i>	<i>Mean (SD)</i>
Infant and child physical activity					
Indoor play environment					
Availability of indoor portable play equipment in good condition	1	198	7.72	Urban	3.54 (0.58)
				Rural	3.18 (0.46)
Daily practices					
Supervising, verbally encouraging, and participating in children's physical activity	1	198	6.18	Urban	3.40 (0.43)
				Rural	3.08 (0.32)
Using physical activity during daily routines, transitions, and planned activities	1	198	4.57	Urban	3.28 (0.47)
				Rural	2.85 (0.40)
Education and professional development					
Offering families information on children's physical activity	1	198	4.04	Urban	2.65 (0.39)
				Rural	2.20 (0.31)
Child outdoor play and learning					
Outdoor play environment					
The garden in the outdoor play space grows fruits and/or vegetables for children's meals and snacks	1	198	3.16	Urban	1.93 (0.25)
				Rural	2.33 (0.34)
Offering enough portable play equipment so that it is available for each child	1	198	10.13	Urban	3.73 (0.66)
				Rural	3.29 (0.53)

Scores reported on a 4-point Likert scale, with 1 being marginally meeting child care standards and 4 being far exceeding child care standards and using best practice. The actual answer options differed depending on question.

Learning items (2 of 15) (Table 4). In regard to the Infant and Child Physical Activity items, urban FCCH providers in comparison with rural providers reported significantly higher practices regarding availability of indoor portable play equipment in good condition for indoor use; supervising, verbally encouraging, and joining in children's physical activity; using physical activity during daily routines, transitions, and planned activities; and offering families information on children's physical activity. In regard to Outdoor Play and Learning, urban providers reported significantly higher availability of portable play equipment available for outdoor use. However, rural providers were significantly more likely to have garden space that was large enough to grow fruits and/or vegetables to provide children meals or snacks.

Discussion

Overall, similar to other Go NAP SACC research, FCCHs demonstrated significant improvements in best practices for offering an environment conducive to physical activity.^{13,23,24} Significant differences between urban and rural FCCH providers were also found.

While FCCH providers reported great improvements, there were still 16 areas that were not meeting best practices. One of these areas was in regard to the programs' collection of posters, books, and other learning materials that promote physical activity. A majority of the FCCH providers in this study participated in USDA's CACFP that provides access to free training and resources (such as books and posters).^{25,26} However, due to the nature of the program, a majority of these resources are focused on nutrition. Future efforts could focus on developing and/or disseminating physical activity resources in collaboration with USDA's CACFP. For example, USDA/CACFP and/or Team Nutrition could be utilized to distribute existing nutrition resources that have a physical activity component (e.g., curriculum such as Sesame Street's Healthy Habits Kit²⁷), as well as disseminating physical activity online trainings in partnership with physical activity professionals. Future research studies are needed to examine the efficacy of developing and delivering statewide physical activity trainings and resources through the CACFP and/or Team Nutrition channels.

Another area in need of greater improvements within both the physical activity and outdoor play assessments centered around having a policy and the number of items included within this policy. There have been significant public health efforts recently to encourage the implementation of written policies in child care programs. While establishing a written policy does showcase the child care organization's commitment to a particular health practice, a recent study found that having a policy about physical activity was actually associated with less physical activity within child cares.¹ Thus, although establishing a written policy at the child care level is important, continued efforts are needed to translate policy into practice. For example, addressing providers' concerns about preferred temperatures for outdoor play, especially in Nebraska, which experiences extreme heat and cold, would be important to ensure the translation of written child care policies into practice.¹

Related to policy is a need to have consistent professional development around both children's physical activity and outdoor play and learning. Although a significant increase was found in the study in providers' receiving professional development, this was likely due in large part to the Go NAP SACC training, and this area was still one of the top areas in need of greater improvements. Additional professional development would allow for further training, especially in the areas where FCCHs did not exceed best practices. For example, the amount of adult-led physical activity did not meet best practice. Child care providers are key to increasing children's level of physical activity through provision of active games, positive prompts, and modeling.^{28,29} Other research suggests that child care providers may feel self-conscious of their bodies, their weight, and their physical activity abilities limiting their confidence and self-efficacy to participate in physical activity with children³⁰; however, more research is needed to determine how these beliefs impact the promotion of physical activity in providers. Regardless, professional development opportunities should focus not only on providers' skills for implementing physical activity with children but also on their own health and well-being.

Of the significant differences found between urban and rural providers, all but one indicated that urban providers reported significantly higher levels of meeting child care standards. Other research has found that for rural providers, funding and resources for equipment may be a challenge.²³ Given that FCCHs represent a majority of child care programs in Nebraska, understanding FCCH providers' underlying attitudes, needs, and challenges can contribute to promoting children's physical activity in child care. Future efforts are needed to explore and address providers' needs, as well as to offer targeted resources and trainings for providers based on their geographic location.

It is important to note that when examining the significant differences, several of the changes may seem like minor improvements. However, these equate to practical significance, as they represent the numerous FCCHs across the state making changes regarding physical activity and outdoor play. For example, the significant improvement in the amount of time provided for preschool children for indoor and outdoor activity represents a change from FCCHs moving from an average of 90 to 119 minutes of activity to more FCCHs offering 120 minutes or more of physical activity. Additionally, several of the largest areas of improvement came in the form of offering education to fam-

ilies on children's physical activity. Thus, this increases the potential for improving physical activity levels within the home as well.

There were several limitations to this study. First, there were differences in the trainings offered. Several different agencies across the state (e.g., CACFP, University of Nebraska–Lincoln Extension, health care entities) provided trainings, and there were no set standards that trainers had to meet (e.g., continuing education, fidelity assessments), including standards for previous physical activity experience or knowledge. Second, there were slight differences in the incentives FCCBs received based on the sponsoring agency, which may have contributed to achieving best practices. Third, although providers were encouraged to follow the Go NAP SACC 5-step process in the suggested order, they may have completed the steps out of order and/ or may not have completed their action plan prior to completing the postassessment. Fourth, due to the collaborative efforts needed to sustain the program, multiple organizations provided trainers and minor changes were made to the training process, which could have influenced the fidelity of the trainings. However, a statewide coordinator trained a majority of the Go NAP SACC trainers from the summer of 2014 onward in order to help trainers and organizations provide consistent trainings. Fifth, several items within the assessment may not be feasible to accomplish while participating in Go NAP SACC (e.g., amount of outdoor space that is shaded, follow-up assessments to determine if changes are being maintained). Finally, this study was a pre-post design. Future research should conduct a follow-up assessment to determine if these changes were maintained. Strengths of this paper include the sample size and that significant results were found over a 2-year period, as well as a large geographic area, indicating that the results were not likely due to natural occurrence. Additionally, this is one of the few studies utilizing the revised Go NAP SACC program with collaboration from multiple partners across the state in a real-world setting of FCCBs.

Future Direction

In conclusion, Go NAP SACC may be an effective intervention in Nebraska, as providers were improving child care physical activity best practices. Research is needed to determine if these changes resulted in objective improvements in children's physical activity levels within

the FCCH or within the child's own home, as research has found low levels of moderate to vigorous physical activity in FCCHs.¹⁶ The development and/or dissemination of geographic-specific resources (urban and rural) would help to ensure continued improvement in the FCCH environments in Nebraska. Additionally, as over 40% of providers who started the assessments did not complete it and those who completed the postassessment may not have taken part in action planning, efforts should focus on ensuring that all providers complete the entire Go NAP SACC process. Finally, as current standards for licensure in Nebraska are minimal in regard to physical activity, the revision of the Department of Health and Human Services Licensure rules and regulations could greatly contribute to improvements in the physical activity environments in child care.

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References

1. Erinosh T, Hales D, Vaughn A, Mazzucca S, Ward DS. Impact of policies on physical activity and screen time practices in 50 child-care centers in North Carolina. *J Phys Act Health*. 2016;13:59–66. doi:10.1123/jpah.2014-0467
2. Measuring America. A child's day: at a glance. United States Census Bureau website. March 17, 2015. https://www.census.gov/library/visualizations/2015/comm/childs_day_2015.html Accessed June 4, 2017.
3. Glynn SJ. Fact sheet: child care. Center for American Progress website. August 16, 2012. <https://www.americanprogress.org/issues/economy/news/2012/08/16/11978/fact-sheet-child-care/> Accessed May 13, 2017.
4. Ammerman AS, Ward DS, Benjamin SE, et al. An intervention to promote healthy weight: nutrition and physical activity self-assessment for child care (NAP SACC) theory and design. *Prev Chronic Dis*. 2007;4(3):A67.
5. Birch LL, Ventura AK. Preventing childhood obesity: what works? *Int J Obes*. 2009;33:S74–S81. doi:10.1038/ijo.2009.22

6. Van Cleave J, Gortmaker SL, Perrin JM. Dynamics of obesity and chronic health conditions among children and youth. *JAMA*. 2010;303:623–630. doi:10.1001/jama.2010.104
7. Dietz WH. Health consequences of obesity in youth: childhood predictors of adult disease. *Pediatrics*. 1998;101:518–525.
8. American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education. *Preventing Childhood Obesity in Early Care and Education Programs: Selected Standards From Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs*. 3rd ed. AAP, APHA, and NRCHSCC; 2012. <http://reader.aappublications.org/preventing-childhood-obesity-in-early-care-and-education-programs-2nd-edition/1>
9. Barnes M. *Solving the Problem of Childhood Obesity Within a Generation*. White House Task Force on Childhood Obesity Report to the President. Washington, DC: Executive Office of the President of the United States; 2010.
10. The 5 steps of Go NAP SACC. Go NAP SACC website. 2017. <https://gonapsacc.org/about-nap-sacc/5-steps-of-go-nap-sacc> Accessed May 15, 2017.
11. Bonis M, Loftin M, Ward D, Tseng TS, Clesi A, Sothorn M. Improving physical activity in daycare interventions. *Child Obes*. 2014;10:334–341. doi:10.1089/chi.2014.0040
12. Drummond RL, Staten LK, Sanford MR, et al. Steps to a healthier Arizona. *Health Prom Pract*. 2009;10(suppl 2):156S–167S. doi:10.1177/1524839908331267
13. Trost SG, Messner L, Fitzgerald K, Roths B. A nutrition and physical activity intervention for family child care homes. *Am J Prev Med*. 2011;41:392–398. doi:10.1016/j.amepre.2011.06.030
14. About family child care. National Association for Family Child Care website. 2016. <https://www.nafcc.org/About-Us> Accessed May 17, 2017.
15. Early childhood totals of type and capacity. Nebraska Department of Health and Human Services website. July 7, 2017. <http://dhhs.ne.gov/publichealth/Documents/statewidedata.pdf> Accessed May 14, 2017.
16. Delaney SL, Monsivais P, Johnson DB. Physical activity levels in family child care homes. *J Phys Act Health*. 2014;11:1362–1366. doi:10.1123/jpah.2012-0297
17. Rural health disparities. Rural Health Information Hub website. October 31, 2014. <https://www.ruralhealthinfo.org/topics/rural-health-disparities> Accessed June 2, 2017.
18. Nebraska Nutrition and Physical Activity Self-Assessment. NE Go NAP SACC website. June 2017. <http://negonapsacc.unl.edu/> Accessed May 10, 2017.
19. Benjamin B, Ammerman A, Sommer J, Dodds J, Neelon B, Ward DS. Nutrition and physical activity self-assessment for child care (NAP SACC): results from a pilot intervention. *J Nutr Educ Behav*. 2007;39(3):142–149. doi:10.1016/j.jneb.2006.08.027
20. Lin G, Qu M. *Smart Use of State Public Health Data for Health Disparity Assessment*. Boca Raton, FL: CRC Press, Taylor & Francis; 2016.

21. Frampton AM, Sisson SB, Horm D, Campbell JE, Lora K, Ladner JL. What's for lunch? An analysis of lunch menus in 83 urban and rural Oklahoma child-care centers providing all-day care to preschool children. *J Acad Nutr Diet*. 2013;114(9):1367-1374. doi:10.1016/j.jand.2013.09.025
22. Natale R, Page M, Sanders L. Nutrition and physical activity practices in childcare centers versus family childcare homes. *Early Child Educ J*. 2013;42:327-334. doi:10.1007/s10643-013-0607-4
23. Battista RA, Oakley H, Weddell MS, Mudd LM, Greene JB, West ST. Improving the physical activity and nutrition environment through self-assessment (NAP SACC) in rural area child care centers in North Carolina. *Prev Med*. 2014;67:S10-S16. doi:10.1016/j.ypmed.2014.01.022
24. Tandon PS, Garrison MM, Christakis DA. Physical activity and beverages in home- and center-based child care programs. *J Nutr Educ Behav*. 2012;44:355-359. doi:10.1016/j.jneb.2011.10.009
25. Child and Adult Care Food Program (CACFP). United States Department of Agriculture website. September 1, 2015. <https://www.fns.usda.gov/cacfp/family-day-care-homes> Accessed May 25, 2017.
26. Team Nutrition. United States Department of Agriculture website. May 11, 2017. <https://www.fns.usda.gov/tn/resource-library> Accessed May 24, 2017.
27. Healthy habits. Sesame Street website. 2017. <http://www.sesamestreet.org/toolkits/healthyhabits> Accessed June 9, 2017.
28. Brown WH, Pfeiffer KA, McIver KL, Dowda M, Addy CL, Pate RR. Social and environmental factors associated with preschoolers' nonsedentary physical activity. *Child Dev*. 2009;80:45-58. doi:10.1111/j.1467-8624.2008.01245.x
29. Trost SG, Fees B, Dzewaltowski D. Feasibility and efficacy of a "move and learn" physical activity curriculum in preschool children. *J Phys Act Health*. 2008;5:88-103. doi:10.1123/jpah.5.1.88
30. Copeland KA, Kendeigh CA, Saelens BE, Kalkwarf HJ, Sherman SN. Physical activity in child-care centers: do teachers hold the key to the playground? *Health Educ Res*. 2012;27:81-100. doi:10.1093/her/cyro38