

Indicators of Readiness and Capacity for Implementation of Healthy Eating Strategies in Child Care Settings Serving Low-Income Children

Allison A. Parsons, PhD¹; Madalena Monteban, PhD^{2,3}; Eunlye Lee, PhD^{2,4}; Pat Bebo, MS, RND, LD⁵; Ana Claudia Zubieta, PhD⁵; Sarah Ginnetti, RD, LD⁶; Julie Hewitt, MEd⁴; Darcy Freedman, PhD^{2,3}

ABSTRACT

Objective: Identify factors perceived to influence implementation of healthy eating policy, systems, and environmental strategies (PSEs) in child care settings serving low-income children.

Design: This mixed-methods study, conducted in 2015–2016, used semi-structured interviews (n = 18), focus groups (n = 23), and an expert panel.

Participants: Public health (n = 11) and *Supplemental Nutrition Assistance Program—Education* practitioners (n = 9) and community residents (n = 174) from 9 counties in Ohio. Expert panelists (n = 10) had experience implementing PSEs in child care settings.

Phenomenon of Interest: Implementation factors influencing healthy eating PSEs in child care settings.

Analysis: Qualitative thematic analysis of 41 transcripts using a grounded theory approach. Indicators for each theme were operationalized. Consensus feedback from an expert panel weighted themes and indicators based on perceived importance for implementation.

Results: Identified themes relevant to implementation of PSEs included (1) organizational and practitioner capacity, (2) child care capacity, (3) networks and relationships, and (4) community resources and motivations. Nineteen indicators related to the 4 themes were identified and weighted.

Conclusions and Implications: Findings highlighted key factors within domains of influence and informed the operationalization of the indicators and the development of an assessment tool. The assessment tool is designed to tailor PSE implementation to the realities of different child care settings.

Key Words: child care setting, community readiness and capacity, healthy eating, low-income, policy, systems, and environmental strategies (*J Nutr Educ Behav.* 2019;51:465–477.)

Accepted September 17, 2018; Available online November 8, 2018.

INTRODUCTION

Childhood obesity is a major health concern in the US.¹ As of 2014, among children aged 2–19 years, 17% were obese.² Low-income and

racial and ethnic minority populations experience higher rates of childhood obesity.³ Obesity during childhood increases the long-term risk for many chronic illnesses such as type 2 diabetes, heart disease,

some cancers, asthma, stroke, and osteoarthritis.⁴ Although individual dietary choices are an important determinant of weight, environmental factors beyond the control of children, such as food choice availability in child care settings, contribute to dietary behaviors and increased obesity trends.^{5,6} Public health efforts emphasize that reversing the obesity epidemic in the US requires a comprehensive and coordinated approach to transform community settings into places that support and promote healthy lifestyle choices.⁷

Policy, system, and environmental (PSE) change strategies represent an approach to transforming places where children learn and play to align better with nutrition education messages for obesity prevention.⁸ As a complement to nutrition education, PSEs have the potential to reach a wider audience,

¹Division of Critical Care, Cincinnati Children's Hospital Medical Center, Cincinnati, OH

²Department of Population and Quantitative Health Sciences, Case Western Reserve University, Cleveland, OH

³Prevention Research Center for Health Neighborhoods, Case Western Reserve University, Cleveland, OH

⁴Center for Child Health and Policy, Department of Pediatrics, Case Western Reserve University, Cleveland, OH

⁵Family and Consumer Sciences, Ohio State University, Columbus, OH

⁶Ohio Department of Health, Columbus, OH

Conflict of Interest Disclosure: The authors have not stated any conflicts of interest.

Address for correspondence: Darcy Freedman, PhD, Department of Population and Quantitative Health Sciences, Case Western Reserve University, 10900 Euclid Ave, Cleveland, OH 44106; E-mail: daf96@case.edu

© 2018 Society for Nutrition Education and Behavior. Published by Elsevier Inc. All rights reserved.

<https://doi.org/10.1016/j.jneb.2018.09.004>

yielding a greater impact on childhood obesity trends.^{8–11} Taxes on tobacco products and smoke-free air policies were critical PSEs implemented to reverse population-level smoking trends.^{12–14} A PSE approach draws from a socioecological model that assumes dietary behaviors are influenced by various factors including individual, interpersonal, organizational, community, and policy.^{7,15} Such an approach recognizes that behavior is complex and results from the interplay of multiple influences across different contexts including the connection between people and their environments.^{15–17} Children's eating practices within child care settings is 1 example of how the environment shapes dietary behaviors.

In the US, more than one third of children aged <5 years spend a significant amount of time in child care settings.¹⁸ Children can consume up to half of their total daily calories while in child care.^{19,20} Thus, child care settings represent an important community setting for addressing childhood obesity through implementing PSE strategies to make healthy dietary choices the easiest choices.²¹ Examples of evidence-based PSE strategies in child care settings include creating supportive spaces for breastfeeding, limiting sugar-sweetened beverages and fried foods, including parents in child care menu planning, and starting onsite gardens.^{22,23}

Community nutrition and public health practitioners from *Supplemental Nutrition Assistance Program—Education* (SNAP-Ed) and from public health departments are beginning to integrate PSE implementation into their practice, in addition to efforts focused on promoting individual-level skills and nutrition education.^{24,25} Changes within community settings are crucial to PSE implementation and require a careful assessment of community readiness and capacity necessary to optimize success. The goal of this research was to identify factors perceived to influence implementation of healthy eating PSEs in child care settings. Findings were operationalized into indicators that may be used to tailor PSE implementation to local levels of readiness and capacity.

METHODS

This research stems from a statewide collaboration between researchers and practitioners from SNAP-Ed and public health programs in Ohio. *Supplemental Nutrition Assistance Program—Education* is a national program implemented within states to improve the likelihood that persons eligible for SNAP benefits will make healthy choices within a limited budget and choose active lifestyles.²⁵ The public health practitioners collaborating in this research were supported through a statewide public health program, *Creating Healthy Communities*, organized by the Ohio Department of Health.²⁶

Sampling and Recruitment

Interview and focus group data collection occurred between April and July, 2015. The researchers used purposive sampling to select urban (n=5) and rural (n=4) counties throughout Ohio that had on-the-ground SNAP-Ed and *Creating Healthy Communities* practitioners to support PSE implementation. The counties included were intentionally diverse in terms of county health ranking, region of the state, adult obesity rates, and SNAP participation. Within each county, purposive sampling was used to recruit 2 participant groups to join the study: (1) frontline practitioners working with SNAP-Ed or *Creating Healthy Communities* programs and (2) community members. To be included in the first group, participants had to be employees with different levels of experience implementing strategies to improve nutritional health among low-income populations in the targeted counties. Community members included 2 subgroups: (1) individual community members receiving, or eligible to receive, SNAP benefits; and (2) members of the local *Creating Healthy Communities* coalition. Community participants represented intended beneficiaries and supporters of the strategies. Participants were recruited through e-mails and flyers. Those who were interested called the study phone line to learn about the study.

Data collection (Phase I in the [Figure](#)) included one-on-one and small-group interviews with SNAP-Ed (n=9) and *Creating Healthy Communities* practitioners (n=11). Focus groups were conducted with SNAP recipients or SNAP-eligible participants and *Creating Healthy Communities* coalition members. In total, 18 interviews and 23 focus groups were conducted. Ethical approval to conduct the research was obtained from the Institutional Review Board of Case Western Reserve University. Before interviews or focus groups, all participants were provided with an informed consent form to read and were given an oral summary of the form. Before beginning each interview or focus group, the researchers reviewed important information in the informed consent form, including participation being voluntary, the right to refuse to answer any question or withdraw from the study at any time without consequences, and confidentiality. The informed consent process included reviewing these critical points and answering any questions before the start of each interview or focus group and asking potential participants to indicate on the consent form whether they accepted or declined to participate in the study.

Conceptual Framework

The conceptual framework guiding the project was informed by 4 frameworks focused on increasing implementation of PSE interventions. The project was underpinned by the Framework for Public Health Action, which shifts public health thinking and practice upstream by focusing attention on factors necessary to create healthier contexts.⁸ The Nutrition and Obesity Policy Research and Evaluation framework offers targeted guidance for changing contexts to promote nutrition and reduce obesity through efforts focused on policy identification, development, evaluation, translation, and dissemination.²⁷

These frameworks represent a shift in public health thinking and practice away from educational and counseling models for obesity prevention to implementation of PSE strategies. A gap remained between

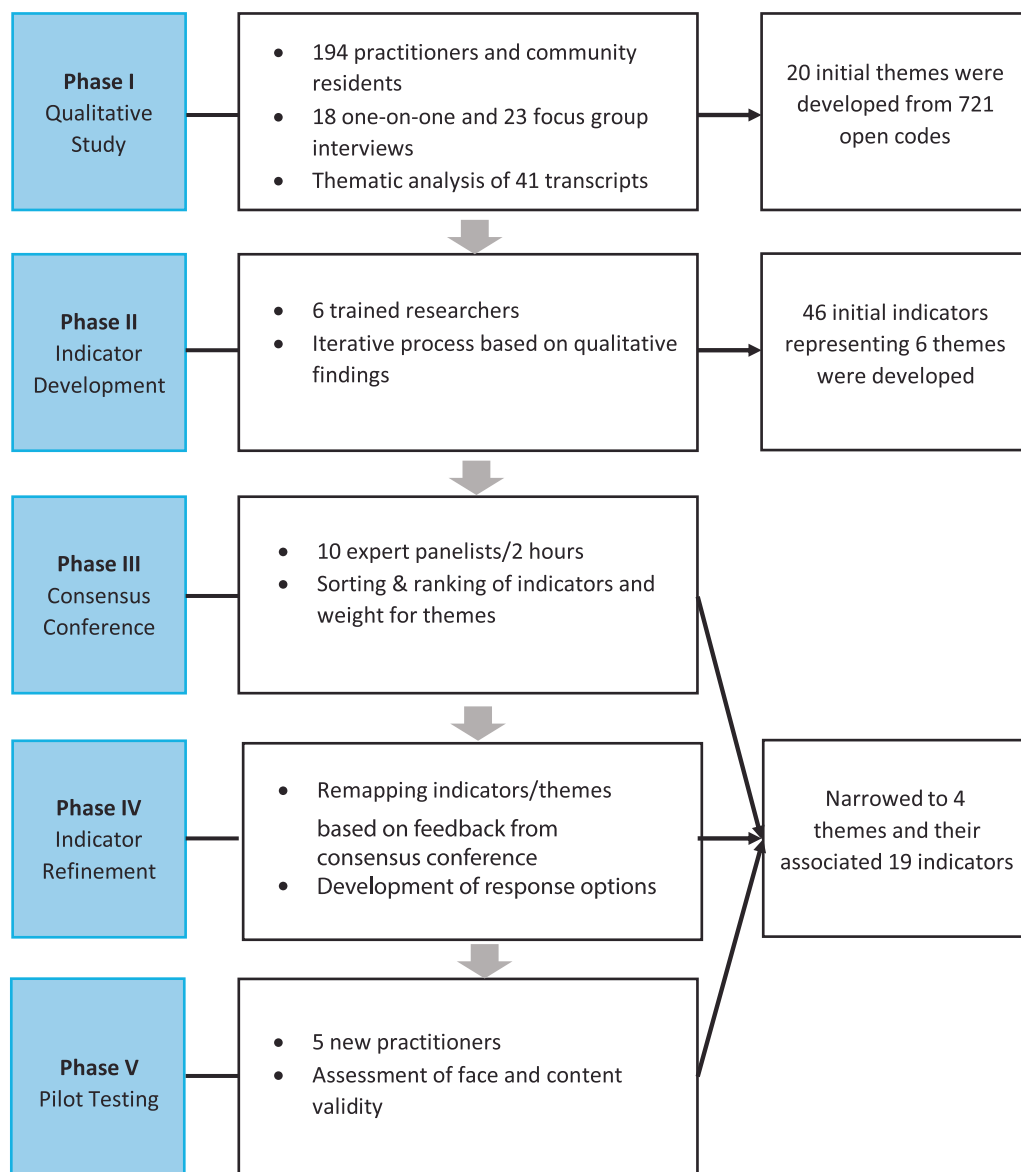


Figure. Five-phase consensus modeling process to develop the policy, systems, and environmental strategies Readiness Assessment and Decision Instrument for implementing healthy eating strategies in child care.

current and necessary levels of community readiness and practitioner capacity needed to implement PSE strategies successfully and sustainably. Conceptual frameworks that highlighted the importance of bridging this gap included the Interactive Systems Framework, which includes a focus on capacity building among frontline practitioners when new innovations (eg, PSE interventions) are introduced.²⁸ In addition, Community Readiness Frameworks highlight the importance of assessing factors within the community and/or organization that are critical to implementing new innovations.²⁹

Data Collection

Semi-structured interviews and focus groups focused on capturing qualitative feedback on healthy eating PSEs recommended for implementation by both SNAP-Ed and *Creating Healthy Communities* including strategies for child care settings, which were the focus of this analysis.^{24,25,30} Examples of healthy eating PSEs in child care settings (eg, supportive spaces for breastfeeding, limiting sugar-sweetened beverages and fried foods) were provided to establish a common definition among participants during data collection. Two

trained research assistants conducted the interviews and focus groups, which were audio-recorded and took 1–2 hours to complete. An independent analyst transcribed the audio-recorded interviews verbatim. Two research staff evaluated each transcript for accuracy before qualitative analysis.

The research team developed the interview and focus group guides informed by a conceptual framework described earlier and by prior research focused on assessing community readiness and capacity for change.^{28,31–33} Interview and focus group questions were designed to

solicit participants' perceptions of factors influencing implementation of healthy eating PSEs including community readiness, organizational readiness, practitioner capacity, local burden of obesity, and sociopolitical context. Important partners including researchers, county- and state-level public health and community nutrition practitioners, and cooperative extension professionals reviewed and provided feedback on the interview and focus group guides as they were developed. The full version of the interview and focus group guides are available in an article published by Lee and colleagues.³⁴

Analysis

In this mixed-methods study, the researchers conducted a thematic analysis of 41 transcripts using a grounded theory approach that included both inductive and deductive analysis.³⁵ Six researchers analyzed the data, reading all data line by line and recording inductively derived open codes (ie, *in vivo* code) for each relevant section of text in the data. The open coding process as well as existing theory related to PSE implementation resulted in the development of a codebook that included definitions and examples of themes and subthemes. Then, open codes were assigned to a theme(s) and subtheme(s) in the codebook using 2 approaches. Deductive coding linked open codes to *a priori* themes based on existing theories related to community readiness, organizational readiness, practitioner capacity, and sociopolitical context.^{28,32} Inductive coding linked open codes to emergent concepts. For instance, social capital represented a theme related to the support needed to coordinate the implementation of healthy eating PSE interventions with the following subthemes: networks, partnerships, or collaborations available to support implementation and systems to remain connected to partners during transitions. Sample open codes related to being connected to networks included: *partnered with organization to do trainings in child care centers for state-level child care accreditation; public health practitioner as an important*

partner; and I could go to partners to get information. Data and coding were organized using ATLAS.ti qualitative data analysis software (version 7.1, Scientific Software Development GmbH, Berlin, Germany, 2012).

In all, the analytic team created 721 open codes related to implementing healthy eating PSEs in child care settings. Twenty initial themes were developed from these 721 codes; themes had 1–12 subthemes (Phase I in the Figure). Further thematic analysis was limited to themes and subthemes that were most common or salient across the interviews and focus groups. The most common or salient themes were defined as those with at least 50 unique references across all data sources and subthemes that represented 1% of the total open codes. Focusing on the themes and subthemes that met these thresholds, researchers worked together, applying an iterative process of discussion and refinement to operationalize indicators, which were descriptive statements that reflected notable components of each theme. A total of 46 indicators were developed representing the 6 initial themes (Phase II in the Figure).

Next, indicators were reviewed during an expert panel consensus conference with 10 participants representing SNAP-Ed, *Creating Healthy Communities*, and a statewide network focused on healthy eating in child care (Phase III in the Figure). During this meeting, teams of 2–3 people sorted indicators into the 6 previously defined themes and then ranked the top 3 indicators per theme. Rankings focused on the 3 indicators considered to be most important to implement healthy eating PSEs in child care successfully. The average of these rankings was used to derive a standardized indicator weight ranging from 0.11 to 0.46, with higher weights indicating greater perceived importance to PSE success in child care. Next, all participants were given 25 tokens and were asked to distribute the tokens across the themes based on perceived importance to PSE success in child care. These tokens represented individually assigned weights to each theme and were averaged to generate

standardized theme weights ranging from 0.0 to 1.0.

After the consensus conference, conceptually similar indicators and themes were refined and merged by the research team, which resulted in 4 themes, 2 less than the original 6 presented at the beginning of the expert panel meeting (Phase IV in the Figure). To promote parsimony, indicators that accounted for 80% of the total standardized weight of a theme were selected for final inclusion. This resulted in 19 indicators representing 4 themes. Because the number of themes was reduced from 6 presented at the expert panel meeting to 4 after refinement and merging, the research team asked panelists to reweight the 4 themes, which resulted in standardized theme weights ranging from 0.14 to 0.33.

RESULTS

In total, 194 people participated in either interviews (n=18) or focus groups (n=23). This included 20 practitioners (11 *Creating Healthy Communities* practitioners and 9 SNAP-Ed practitioners) and 174 community members (127 people receiving, or eligible to receive, SNAP and 47 *Creating Healthy Communities* coalition members). Most focus group participants were female (69%) and self-reported current receipt of federal food assistance benefits such as SNAP (65%). Nearly 60% self-reported that they were white and 40% were African American. Demographic characteristics were not recorded for practitioners included in the interviews because of the relatively small sample size and the risk for loss of confidentiality.

Results of the data analysis were informed by the qualitative data collected through interviews and focus groups and refined through a mixed-methods approach using a consensus conference with an expert panel. The themes presented here were derived from the 721 codes produced through qualitative data analysis. Twenty themes were developed from these codes, which were further refined based on salience to 6 themes and 46 indicators. Through the consensus conference process described earlier, a

total of 4 themes were prioritized by the panel of experts as being most relevant to implementing healthy eating PSEs in child care settings. Results focused on these 4 prioritized themes: (1) organizational and practitioner capacity, (2) child care capacity, (3) networks and relationships, and (4) community resources and motivations. Table 1 presents the corresponding indicators for the 4 themes and includes standardized theme and indicator weights allocated based on both indicator and theme ranking exercises conducted with the expert panel as well as reflection and refinement by the research team. The qualitative data underpinning the 4 prioritized themes are given subsequently. These qualitative data were used to derive the themes and related indicators. Whereas all indicators (n=19) are listed in Table 1, for each theme, presentation of qualitative results focuses on indicators that received the highest indicator weight scores from the expert panel. The source of each quotation is provided by noting whether the text came from practitioners or community members from a rural or urban context.

Organizational and Practitioner Capacity

The organizational and practitioner capacity theme (theme A) received the highest standardized theme weight (0.33) by the expert panel. This theme focused on the ability of organizations and practitioners to support child care and preschool centers to implement healthy eating PSE strategies. Two subthemes were identified, including organizational resources related to budgets, staffing, and training; and community resources necessary for implementation. Indicator A.1 was given the most weight (0.46) and focused on the availability of organizational or program funding to support implementation. Two indicators (A.2 and A.3) received the second highest weight (0.15) and focused on (1) the number of staff members available and (2) the amount of time available to staff to support child care centers or preschools for implementation.

Funding to support implementation. In relation to indicator A.1, participants

expressed concern regarding the existence and sustainability of funding to support healthy eating PSEs in child care settings. For instance, 1 participant said,

I think funding is the biggest barrier, I think, funding to support the different healthy activities 'cause they're, they're seen as extra activities and not necessarily, um ... required. (Practitioner, urban)

Furthermore, there was a concern that child care centers were not “aware of what grants are out there for strategies or programs that can assist them” (Practitioner, urban). Some participants mentioned alternative ways to obtain resources, such as seeking free training and local partners for donations.

Participants also mentioned that a barrier to implementing PSEs in child care settings was the lack of sustainable funding. For example, participants discussed that once grant funds were expended, often there were no plans in place to continue strategies in the long term. Participants also mentioned the shifting focus of grant funding trends, which had an impact on sustainability:

A lot of the drive is where the grants ... funding is going and 6 years ago, every federal funding had something about [healthy eating PSEs] ... now it has been broader into schools ... there aren't quite as many specific dollars tied to this. (Community member, urban)

In addition, 1 participant discussed the challenges of managing funds and funding regulations:

[It's] kind of daunting ... to know that, okay, we've got money in the budget but not sure whether it can be used for this or, ... it can only be used for these reasons, ... funds can't be comingled. (Practitioner, rural).

Staff availability and time constraints. Indicators A.2 and A.3 reflect findings from the qualitative data regarding staffing and time available to support

healthy eating PSEs in child care. For instance, 1 participant said, “We have the resources, I think, but we don't have the manpower” (Practitioner, urban), whereas another participant said, “We might have staff, but we don't have a lot of money” (Practitioner, urban). Another participant stated emphatically, “We'll never have the budget for it [nutrition educator position] again” (Practitioner, rural). Turnover within the child care setting was mentioned as a barrier to both implementation and sustainability of PSEs. As 1 participant put it,

... The center director turnover rate is high, so I could be maybe working with a center and then all of a sudden it is a completely different director and their views might be different. (Practitioner, urban)

Practitioners identified other challenges including the feeling that healthy eating PSE programs were complicated and time-consuming.

Child Care Capacity for Healthy Eating PSE Strategies in Child Care

The child care center capacity theme (theme B) was ranked second highest by the expert panel with a standardized theme weight of 0.30. This theme focused on the ability of a child care center to implement healthy eating PSE strategies. Three subthemes were identified, including child care center resources, parental support systems, and child care center staff and administrator support. Of the 6 indicators developed from this theme, B.1 was weighted as most important (0.28), focused on parent buy-in and support for healthy eating PSE strategies in child care centers. The second most important indicator (B.2) focused on child care administrators' promotion of healthy eating PSE strategies as essential to the curriculum and the extent to which child care centers had enough staff to implement these PSEs (0.22).

Parent buy-in and support. With regard to indicator B.1, participants felt that parents were essential to healthy eating PSE success, as evidenced by quotations

Table 1. Theme and Indicators Weights for Healthy Eating in Child Care Settings

| Theme | Standardized Theme Weight^a | Indicator | Standardized Indicator Weight^b |
|---|--|--|--|
| Theme A: Organizational and practitioner capacity (the ability of organizations and practitioners to support implementation of healthy eating PSE projects in child care centers) | 0.33 | A.1. To what extent does your current annual organizational or program budget have funds to support implementation of healthy eating PSE projects in child care centers that serve low-income children in your service area? | 0.46 |
| | | A.2. To what extent does your organization have staff who are available to support implementation of healthy eating PSE projects in child care centers that serve low-income children in your service area? | 0.15 |
| | | A.3. To what extent do you spend time each month helping child care centers in your service area implement healthy eating PSE projects? | 0.15 |
| | | A.4. To what extent are you able to communicate to child care center staff the steps involved in implementing the different types of healthy eating PSE projects for child care centers? | 0.12 |
| | | A.5. To what extent are resources available in your community to support writing and submitting grants focused on healthy eating PSE projects for child care centers in your service area? | 0.11 |
| Theme B: Child care capacity (abilities and resources within child care centers to foster implementation of healthy eating PSE projects) | 0.30 | B.1. To what extent is there parent buy-in and support for healthy eating PSE projects in child care centers in your service area? | 0.28 |
| | | B.2. To what extent do administrators from child care centers serving low-income children in your service area promote healthy eating PSE projects as an essential part of their curriculum and programming? | 0.22 |
| | | B.3. To what extent do child care centers serving low-income children in your service area have enough staff to support implementation of healthy eating PSE projects? | 0.17 |
| | | B.4. To what extent do child care centers serving low-income children in your service area offer healthy and varied food choices during school meals and snacks? | 0.11 |
| | | B.5. To what extent is it easy to access space within child care centers in your service area to support healthy eating PSE projects (eg, breastfeeding or milk | 0.11 |

(continued)

Table 1. (Continued)

| Theme | Standardized Theme Weight ^a | Indicator | Standardized Indicator Weight ^b |
|---|--|--|--|
| | | storage, gardening, or onsite meal preparation)? | |
| | | B.6. To what extent do staff from child care centers serving low-income children in your service area have time available during their workday for healthy eating PSE projects? | 0.11 |
| Theme C: Networks and relationships (social capital (ie, networks or relationships) on which practitioners can draw to implement and support healthy eating PSE projects in child care centers) | 0.23 | C.1. To what extent do you interact with people and groups that are supportive of healthy eating PSE projects in child care centers (eg, child and family services, health department, youth serving organizations, schools)? | 0.41 |
| | | C.2. To what extent are you involved with collaborations/coalitions focused on increasing implementation of healthy eating PSE projects in child care centers (ie, licensing changes, reimbursement models)? | 0.35 |
| | | C.3. To what extent are you able to remain connected to child care centers that serve low-income children in your service area when there is staff turnover at the center? | 0.24 |
| Theme D: Community resources and motivations (community leadership, investment, and support systems that influence uptake of healthy eating PSE projects in child care centers) | 0.14 | D.1. To what extent are community members and leaders in your service area invested in healthy eating PSE projects in child care centers? | 0.30 |
| | | D.2. To what extent are community members and leaders in your service area invested in reducing broader influences on childhood obesity such as poverty and lack of neighborhood resources? | 0.21 |
| | | D.3. To what extent do parents/caregivers from low-income households (including those receiving <i>Supplemental Nutrition Assistance Program</i>) in your service area have the resources and knowledge to model healthy eating behaviors for their young children at home? | 0.21 |
| | | D.4. To what extent are children from low-income households in your service area enrolled in child care centers? | 0.18 |
| | | D.5. To what extent are there effective programs or initiatives in your service area to help parents manage breastfeeding within busy schedules? | 0.11 |

PSE indicates policy, systems, and environmental strategies.

^aStandardized final theme weights were derived from consensus modeling methods ranging from 0 to 1.

^bStandardized final indicator weights were derived from consensus modeling methods ranging from 0 to 1.

Note: Total number of final indicators of healthy eating in child care setting = 19.

such as “If the parents are not involved, then it is not going to work” (Community member, urban). There was agreement among participants that information about healthy eating PSEs was not adequately communicated to the parents. As 1 coalition member stated, “We’re just giving information to administrators. I guess we’re really not promoting it to the parents to ask for the program” (Community member, urban). Strategies to enhance parent engagement and buy-in included increasing and improving communication with parents about PSEs and the benefits of these strategies, providing alternative times and modalities of meeting with busy parents, and involving parents in the decision-making process. As 1 participant suggested,

Making it e-mailed, digital ... so that parents can participate 'cause I don't think a lot of parents go to parent meetings anymore; not because they aren't interested, but because ... fast-paced lifestyle. (Community member, urban)

Support within child care settings. With regard to administrators’ promotion of healthy eating PSE strategies (indicator B.2), 1 participant said,

The staff was a little bit resistant, but when the [child care center] administrator was excited about it, the staff kind of started to get on board with the changes, too. (Community member, rural)

Participants felt that any resistance from child care center leaders and staff was connected to competing priorities. As 1 participant stated,

Right now, they're [child care center] working on [name of state child care licensing program], so they're more worried about all that paperwork than adding an additional program to their center. (Community member, rural)

Participants also mentioned that healthy eating PSEs were not prioritized in the child care center curriculum because “... they’re seen as extra activities and not necessarily ... required” (Practitioner, urban).

Networks and Relationships for Healthy Eating PSE Strategies in Child Care

The networks and relationships for the healthy eating theme (theme C) received a standardized theme weight of 0.23. This theme focused on the value added through a networked model of practice in which practitioners were connected to others to maximize impact. Two subthemes were identified including networks, partnerships, or collaborations available to support implementation of healthy eating PSEs and systems to remain connected to partners during transitions. Of the 3 indicators associated with this theme, interactions with people and groups supportive of healthy eating PSEs (C.1) was ranked the highest (0.41). The second highest rated indicator (C.2) focused on connecting with collaborations or coalitions supportive of healthy eating PSEs (0.35).

Interactions with supportive people and groups. In relation to indicator C.1, participants described the need to connect with others to support PSE implementation. For example, 1 participant stated,

We collaborate with organizations that work on [Healthy Eating and Active Living] PSEs in both licensed preschool settings and in in-home child care providers. We also work on several state-level committees to look at incorporating these things into ... [child care] licensing standards. (Community member, urban)

The following quotation also highlights the importance of partnerships among organizations in relation to healthy eating PSE implementation:

[County Public Health] ... are actually going out and working with the child care centers and providing them with the technical assistance and ... you know, guidebooks on how to implement the policy, what to do, suggestions of activities they can do ... that sort of thing as well as bringing in other experts, like nutrition

councils will come in ... and work with those... child care stakeholders. So, having organizations like that, that are actually providing the support ... which is what it really takes for any of these [child cares] to actually be able to implement something like that, I think is really important. (Community member, urban)

Different groups were mentioned as supporting specific components of PSEs. For example, 1 practitioner from an urban setting mentioned “partnering with *Head Start* to offer the nutrition education ...,” a local botanical garden for help “with community gardens so they have the information kind of from the gardening perspective ...,” a department store kids’ program for help with “nutrition education, physical activity at some different sites,” and the health department and hospital systems for help with “the whole creative supportive space for nursing and breastfeeding ...” (Practitioner, urban)

Community Resources and Motivations

The community resources and motivations theme (theme D) received the lowest standardized theme weight (0.14). This theme was defined as community factors that influenced uptake of healthy eating PSEs in child care settings. Three subthemes were identified including community investment, community influence and messages, and community support systems and leadership. Indicator D.1 received the highest weight (0.30) and focused on community members’ and leaders’ investment in healthy eating PSE strategies. There was a tie between 2 indicators (D.2 and D.3) for the second highest rating (0.21). These focused on community members’ and leaders’ investment in addressing broader influences on childhood obesity and support from parents and/or caregivers to model healthy eating at home.

Community members’ and leaders’ investment. Indicator D.1 stemmed from the emphasis placed by participants on the importance of having

invested community leaders to further PSE efforts in child care settings. In particular, priorities among political leaders were considered to be important factors driving decisions to support or not support child care–focused PSE initiatives. On the one hand, there was a sense that community leaders struggled to prioritize healthy eating initiatives in child care. For instance, in response to an interview question about the importance of breastfeeding initiatives in the community, 1 participant said,

I think if you asked them [community leaders], they would say yes, but I think there are bigger fish to fry ... that [breastfeeding] is not a top issue. (Community member, rural)

On the other hand, participants mentioned that because they had had success with “different strategies specifically around policy systems changes and environmental changes,” they had found that “even our federal government is saying, we want to see more of this” (Practitioner, urban).

Broader influences on childhood obesity. Indicator D.2 focused on community investment in addressing broader influences on childhood obesity. This indicator stemmed from feedback from participants about broader neighborhood influences such as poverty that served as barriers to health promotion: “You got a lot of parents out here that can’t afford to get a kid’s lunch to take to school ...” (Community member, urban). A strategy that participants mentioned to address economic barriers and risk for food insecurity included providing food in the child care environment to supplement children’s diets as much as possible:

[I]t’s very important because we have to make sure that those children have nutrition for lunch or breakfast, lunch, and ... and a nutritious snack every day, and that’s the main focus, because a lot of these kids, when they go home, they don’t eat. (Community member, rural)

Importance of parental and child care provider role modeling. With regard to

the last indicator (D.3), participants discussed fast-paced lifestyles and work priorities as barriers to parent or caregiver role modeling of healthy eating behaviors at home. In particular, several participants affirmed the concern expressed by 1 participant who stated,

[E]verybody’s always on the go ... everybody is always doing something. They don’t have time to prepare the healthy stuff sometimes. (Community member, urban)

Furthermore, 2 participants said that role modeling was an important part of childhood obesity prevention, and that this may occur when adults encounter children in child care settings, in community spaces more generally, and in home settings. For example, 1 participant said, “If you drink pop, that’s fine, but don’t drink it in front of the kids” (Practitioner, urban). Another role-modeling strategy included encouraging children to bring what they learned to their homes:

Yeah, I mean, encourage it. When somebody comes home from [child care] and says, “My teacher told me we’re gonna do this,” and you know, “Can we try [the activity I did at school] today?” (Community member, urban)

DISCUSSION

Results from this qualitative analysis highlight 4 domains of influence related to community readiness and the capacity for implementing healthy eating PSE strategies in child care settings. The first 2 domains focus on the ability of (1) organizations and practitioners and (2) child care institutions to implement healthy eating PSE strategies in child care settings. The other 2 domains focus on the influence of (3) social networks and (4) community resources and motivations that support healthy eating PSE strategies in child care settings. This research identified and prioritized 19 indicators representing the 4 domains of influence to optimize implementation of healthy eating PSEs in child care settings. The highest

rated indicator for each domain included: (1) the availability of organization or program funding to support strategy implementation, (2) parental buy-in, (3) the added value of interacting with others who were supportive of PSE strategies, and (4) community investment in healthy eating PSE strategies in child care settings.

Policy, systems, and environmental strategies, which require effective collaboration between child care settings and the surrounding community, are increasingly proposed as solutions for reducing childhood obesity trends.^{21–23} In practice, however, these approaches are often difficult to implement.^{36,37} Findings highlighted the importance of having local support systems available in communities through programs such as SNAP-Ed and *Creating Healthy Communities*, which are positioned to provide training, technical support, and coaching to child care centers as they seek to integrate healthy eating PSE strategies into their settings. It is critical for these support systems to provide tailored and realistic advice that considers concerns about the time and money needed to develop relationships, build capacity, implement, and refine healthy eating PSE strategies given competing demands such as achieving child care center licensing expectations. To balance these concerns, findings from the current research as well as research from others³⁸ revealed the need for funding to be available and sustained as task roles shift to consider the new work required to implement healthy eating PSEs in child care settings.

Similar to findings from the current study, other research suggested that it is important to involve parents to increase the sustainability of healthy eating PSE strategies in child care. For instance, in a review of numerous interventions in child care settings, Ling et al³⁹ emphasized active engagement of parents to strengthen obesity prevention initiatives among preschool-aged children. The time needed to garner parent buy-in should be considered a core element of healthy eating PSE implementation.

Although the literature is sparse, some researchers similarly found value in interacting with others

Table 2. Sample Recommendations Tailored to Low, Medium, and High Levels of Readiness and Capacity for Implementing Healthy Eating PSEs in Child Care Settings Derived From Weighted Assessment Tool**Indicator D.1. To what extent are community members and leaders in your service area invested in healthy eating PSE projects in child care centers?****Score and Recommendation Summary^a****Sample Tailored Recommendation**

| | |
|---|---|
| <p>Low</p> <p>Begin to work to achieve community member buy-in on healthy eating projects in child care</p> | <p>It is important to get community members and leaders in your service area involved and interested in healthy eating PSE projects in child care/preschool centers that serve low-income children. Begin by identifying individuals who champion or support early childhood health. Start with the Ohio Child Care Resources and Referral Association and the Ohio Job and Family Services: Early Learning and Development websites to search for potential leaders in the field. Look for opportunities that would allow you to explain more about healthy eating PSE projects, the value of these projects, and how the projects can benefit the low-income children in their community. It would be helpful to bring background information about obesity rates in your county or service area as well as information about the number of childcare centers/providers that healthy eating PSE work could potentially benefit. The Community Toolbox has great resources on identifying, planning, and sustaining partnerships among interested stakeholders, especially under the toolkit section of the page.</p> |
| <p>Medium</p> <p>Work to achieve community member buy-in on healthy eating projects in child care</p> | <p>Continue to develop relationships with leaders in your service area that support healthy eating initiatives in child care/preschool centers serving low-income children. These leaders can introduce you to community residents/leaders who have or may have an interest in early childhood nutrition. Community members/leaders can be valuable assets to increase overall community awareness of and demand for healthy eating PSE projects in local child care/preschool centers. Assess your connections and knowledge of community members and leaders in your service area, making sure you have a variety of backgrounds represented at the table. The Stakeholder and Champion Engagement Worksheet can help organize your information and identify gaps where further community member and leader support is necessary. Be creative in thinking about possible leaders and make sure the parents of children being served by the PSE project are on the list.</p> |
| <p>High</p> <p>Continue to work to achieve community member buy-in on healthy eating projects in child care</p> | <p>Having a strong foundation of invested community members and leaders is excellent, but keeping that momentum going and growing can be challenging. Focus on keeping current leaders engaged while continually drawing in new community members to the field. Provide community members and leaders with the opportunity to engage with groups and individuals from other service areas who have successfully implemented healthy eating PSE projects in child care/preschool centers. Consider having your organization serve as a host site for a community meeting, seminar, or training on healthy eating PSE project for child care/preschool centers to bring different groups together. If your organization does not have the space, collaborate with other leaders or organizations to make a gathering of some sort available. Creating space for current leaders and interested stakeholders to interact will help engage and develop all participants while adding energy and direction to PSE efforts. With a firm base of community leader buy-in, consider moving toward a larger goal together, such as coordinating systems and services or implementing shared accountability models for healthy eating PSEs. Ohio Family and Children First shares great resources on achieving systems goals.</p> |

PSE indicates policy, systems, and environmental strategies.

^aTailored recommendations are generated from an online assessment tool platform Policy, System, and Environmental Readiness Assessment and Decision Instrument (PSE READI).⁴⁵ This platform is initially focused to provide recommendations for communities throughout Ohio. The score is produced through an algorithm that first assigns numerical values to all indicator responses scaled from 0 to 1 (0.00 = not at all; 0.25 = slightly; 0.50 = moderately; 0.75 = very; and 1.00 = extremely). Indicator response values are then weighted by multiplying them by their corresponding theme and indicator weights. This product is then multiplied by 100 to transform the score into a 0–100 scale. Each indicator has a maximum indicator score associated with it that corresponds to a score in which an indicator would have received the highest response (ie, extremely). The final indicator score is the difference between the maximum indicator score and the weighed indicator score. Higher scores indicate greater opportunity for improvement related to that specific indicator. The 3 highest final indicator scores are used to derive tailored recommendations. All calculations were made using rounded numbers.

supportive of PSE strategies. In a survey of nutrition educators (n = 58), Lu and colleagues⁴⁰ found that community networking was one of the most significant contributors to using PSE strategies to prevent obesity. Moreover, Ganter et al⁴¹ found that stakeholders reported that they often worked in silos apart from others working toward the same goals and that there was a belief that collaborating with nontraditional partners would increase PSE implementation success. Stakeholders also thought that there was added value in learning from others' experiences.⁴¹

The current findings also illuminate the importance of involving community members and leaders in PSE strategies in child care settings. de Silva-Sanigorski et al⁴² examined the effect of a community-wide intervention in obesity outcomes on children aged <5 years and found a significant reduction in obesity prevalence in an intervention that incorporated the collaboration of community members and stakeholders from a range of community sectors. In addition, some literature on nutrition-focused PSE strategies in areas such as schools and retail environments indicated that their success depends on the buy-in of diverse stakeholders including community members and leaders.^{9,10} Among important activities associated with successful PSE adoption, Lyn and colleagues⁴³ included building support and political will through engagement and collaboration with major stakeholders. Holden et al⁴⁴ described collaborating with a local community health organization and members of a community governance coalition in implementing a healthy corner store PSE project. The current findings and other research highlighted the value of investing time and resources to gain buy-in from community members and leaders to identify how healthy eating PSEs in child care settings overlap with other concerns and interests of a community.

There were limitations to this research. Self-selection of participants may have reduced the likelihood of generalizability. The views of the

expert panel may not have reflected the full range of perspectives about factors influencing successful implementation of PSEs in child care, which would have an impact on the weights assigned to indicators and themes. Further research may replicate methods with different stakeholders to gain consensus on the theme and indicator weights. In addition, psychometric properties of the indicators were not assessed and might be a focus for future research.

IMPLICATIONS FOR RESEARCH AND PRACTICE

Findings highlight different dimensions of heterogeneity that may have an impact on implementing healthy eating PSE strategies in child care settings. In other words, no single approach to implementation will be relevant to all child care settings. Based on findings of this research, an online assessment tool for practitioners and community stakeholders is being developed to assess readiness and capacity for implementing healthy eating PSE strategies. After taking the assessment tool, which may be completed individually or with a team of community stakeholders, a tailored set of recommendations will be generated to support local implementation. Recommendations are derived based on weighted responses to each of the 19 indicators.

Table 2 provides examples of recommended action steps generated from the assessment tool that are tailored to the practitioners' level of readiness and capacity for implementing PSEs in a child care setting. The 3 different sample recommendations are based on responses to the question *To what extent are community members and leaders in your service area invested in healthy eating PSE projects in child care centers?* which is related to the theme of community resources and motivations. The 3 recommendations were designed to provide nuanced targets for action based on existing readiness and capacity. After completing the assessment tool, only 1 of the 3 recommendations would be provided to a team if this indicator were prioritized based on the weighted score. For instance, if a team had low readiness and capacity

based on this indicator, the team would be recommended to begin to identify champions who might be useful in building support for healthy eating PSEs in child care. In contrast, if a team scored high on this indicator, it would be recommended to maintain engagement with current leaders supportive of PSEs in child care and to begin to engage new community leaders in this area of work. A full description of the 3 tailored recommendations for this indicator is provided in Table 2.

Gaining parent buy-in may require multiple strategies that consider the realities of having a fast-paced life. This is particularly important for families with working parents whose free time may be constrained. In addition, gaining parent buy-in may need to involve efforts to learn about competing priorities of parents to identify how healthy eating PSEs align with overall concerns and interests.

A host of PSE strategies are proposed in child care settings for improving young children's nutrition to improve diet-related health outcomes. However, evidence remains limited about which factors are most important to support implementation and success of PSEs in child care settings across diverse contexts. Findings highlighted important factors within domains of influence and led to the operationalization of these indicators and the development of an assessment tool. The assessment tool was designed to tailor PSE implementation to the realities of different settings. Future research might evaluate variability in readiness and capacity across communities and the impact of the tailored recommendations on implementing healthy eating PSEs in child care settings.

ACKNOWLEDGMENTS

This study was supported by grants from the US Department of Agriculture, *Nutrition Education and Obesity Grant Program* (G-1415-17-0847 and G-1617-0452), a Centers for Disease Control and Prevention Preventive Health and Health Services Block Grant (2B01OT009042-15), and the Health Promotion and Disease Prevention Research Center, supported by Cooperative Agreement No.

1U48DP005030 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers for Disease Control and Prevention or the US Department of Agriculture. Allison Parsons, PhD was supported by a Ruth L. Kirschstein National Research Service Award (NRSA) Institutional Training Grant: Primary Care Research Fellowship in Child and Adolescent Health during the conduct of this study.

REFERENCES

- Hales CM, Carroll MD, Fryar CD, Ogden CL. *Prevalence of Obesity Among Adults and Youth: United States, 2015-2016*. Hyattsville, MD: US Dept of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics; 2017.
- Ogden CL, Carroll MD, Lawman HG, et al. Trends in obesity prevalence among children and adolescents in the United States, 1988-1994 through 2013-2014. *JAMA*. 2016;315:2292-2299.
- Larson NI, Story MT, Nelson MC. Neighborhood environments: disparities in access to healthy foods in the US. *Am J Prev Med*. 2009;36:74-81. e10.
- Freedman DS, Khan LK, Serdula MK, Dietz WH, Srinivasan SR, Berenson GS. The relation of childhood BMI to adult adiposity: the Bogalusa Heart Study. *Pediatrics*. 2005;115:22-27.
- Hill JO, Peters JC. Environmental contributions to the obesity epidemic. *Science*. 1998;280:1371-1374.
- Sallis JF, Glanz K. The role of built environments in physical activity, eating, and obesity in childhood. *Future Child*. 2006;16:89-108.
- Story M, Kaphingst KM, Robinson-O'Brien R, Glanz K. Creating healthy food and eating environments: policy and environmental approaches. *Annu Rev Public Health*. 2008;29:253-272.
- Frieden TR. A framework for public health action: the health impact pyramid. *Am J Public Health*. 2010;100:590-595.
- Bunnell R, O'Neil D, Soler R, et al. Communities Putting Prevention to Work Program Group. Fifty communities putting prevention to work: accelerating chronic disease prevention through policy, systems, and environmental change. *J Community Health*. 2012;37:1081-1090.
- Fagen MC, Asada Y, Welch S, et al. Policy, systems, and environmentally oriented school-based obesity prevention: opportunities and challenges. *J Prev Interv Community*. 2014;42:95-111.
- Foltz JL, Belay B, Dooyema CA, Williams N, Blanck HM. Childhood Obesity Research Demonstration (CORD): the cross-site overview and opportunities for interventions addressing obesity community-wide. *Child Obes*. 2015;11:4-10.
- Mercer SL, Green LW, Rosenthal AC, Husten CG, Khan LK, Dietz WH. Possible lessons from the tobacco experience for obesity control. *Am J Clin Nutr*. 2003;77:1073S-1082S.
- Grossman M, Chaloupka FJ. Cigarette taxes: the straw to break the camel's back. *Public Health Rep*. 1997;112:290-297.
- Chaloupka FJ, Grossman M, Saffer H. The effects of price on alcohol consumption and alcohol-related problems. *Alcohol Res Health*. 2002;26:22-34.
- Stokols D, Allen J, Bellingham RL. The social ecology of health promotion: implications for research and practice. *Am J Health Promot*. 1996;10:247-251.
- Sallis JF, Owen N, Fisher E. *Ecological models of health behavior*. In: Viswanath K, Rimer BK, Glanz K, eds. *Health Behavior: Theory, Research, and Practice*. 43, 5th ed. San Francisco, CA: Jossey-Bass; 2015:43-64.
- Swinburn B, Egger G, Raza F. Dissecting obesogenic environments: the development and application of a framework for identifying and prioritizing environmental interventions for obesity. *Prev Med*. 1999;29:563-570.
- Laughlin L. *Who's Minding the Kids? Child Care Arrangements*. Current Population Reports. Washington, DC: US Census Bureau; 2013:70-135.
- Briefel RR, Wilson A, Gleason PM. Consumption of low-nutrient, energy-dense foods and beverages at school, home, and other locations among school lunch participants and nonparticipants. *J Am Diet Assoc*. 2009;109:S79-S90.
- Gleason P, Suitor C. *Children's diets in the mid-1990s: dietary intake and its relationship with school meal participation*. Princeton, NJ: Mathematica Policy Research; 2001.
- McGuire S. *Institute of Medicine (IOM) Early Childhood Obesity Prevention Policies*. Washington, DC: National Academies Press; 2011.
- American Academy of Pediatrics, American Public Health Association, National Resource Center for Health and Safety in Child Care and Early Education. *Preventing Childhood Obesity in Early Care and Education Programs*. Itasca, IL: American Academy of Pediatrics; 2012.
- Center for Disease Control and Prevention. *Obesity Prevention in Early Care and Education: Quick Start Action Guide*. Atlanta, GA: Centers for Disease Control and Prevention; 2011.
- Centers for Disease Control and Prevention. *Strategies to Prevent Obesity and Other Chronic Diseases: The CDC Guide to Strategies to Increase Physical Activity in the Community*. Atlanta, GA: Centers for Disease Control and Prevention; 2011.
- US Department of Agriculture. *SNAP-ED Strategies and Interventions: An Obesity Prevention Toolkit for States*. Washington, DC: US Department of Agriculture; 2015.
- Ohio Department of Health. *Creating Healthy Communities*. <https://www.odh.ohio.gov/en/health/healthylife/create-comm/Creating-Healthy-Communities-Program>. Accessed December 5, 2017.
- Blanck HM, Kim SA. Creating supportive nutrition environments for population health impact and health equity: an overview of the Nutrition and Obesity Policy Research and Evaluation Network's efforts. *Am J Prev Med*. 2012;43:S85-S90.
- Wandersman A, Duffy J, Flaspohler P, et al. Bridging the gap between prevention research and practice: the interactive systems framework for dissemination and implementation. *Am J Community Psychol*. 2008;41:171-181.
- Donnermeyer JF, Plested BA, Edwards RW, Oetting G, Littlethunder L. Community readiness and prevention programs. *Community Development*. 1997;28:65-83.
- Centers for Disease Control and Prevention. *Children's Food Environment State Indicator Report, 2011*. Atlanta, GA: Centers for Disease Control and Prevention; 2011.
- Freedman DA, Whiteside YO, Brandt HM, Young V, Friedman DB, Hébert JR. Assessing readiness for establishing a farmers' market at a community health center. *J Community Health*. 2012;37:80-88.

32. Oetting ER, Donnermeyer JF, Plested BA, Edwards RW, Kelly K, Beauvais F. Assessing community readiness for prevention. *Int J Addict.* 1995;30:659-683.
33. Lewis KM, Lesesne CA, Zahniser SC, et al. Developing a prevention synthesis and translation system to promote science-based approaches to teen pregnancy, HIV and STI prevention. *Am J Community Psychol.* 2012;50:553-571.
34. Lee E, Dalton J, Ngendahimana D, et al. Consensus modeling to develop the farmers' market readiness assessment and decision instrument. *Transl Behav Med.* 2017;7:506-516.
35. Emerson RM. *Contemporary Field Research: Perspectives and Formulations.* Long Grove, IL: Waveland Press, Inc; 2001.
36. Izumi BT, Rostant OS, Moss MJ, Hamm MW. Results from the 2004 Michigan Farm-to-School survey. *J Sch Health.* 2006;76:169-174.
37. Pinard CA, Smith TM, Carpenter LR, Chapman M, Balluff M, Yaroch AL. Stakeholders' interest in and challenges to implementing farm-to-school programs, Douglas County, Nebraska, 2010-2011. *Prev Chronic Dis.* 2013;10:E210.
38. Kaphingst KM, Story M. Child care as an untapped setting for obesity prevention: state child care licensing regulations related to nutrition, physical activity, and media use for preschool-aged children in the United States. *Prev Chronic Dis.* 2009;6:A11.
39. Ling J, Robbins LB, Wen F. Interventions to prevent and manage overweight or obesity in preschool children: a systematic review. *Int J Nurs Stud.* 2016;53:270-289.
40. Lu AH, Dickin KL, Constan MA, Dollahite JS. The relationship between community nutritionists' use of policy, systems and environmental strategies to prevent obesity and its determinants depends on networking. *Public Health Nutr.* 2017;20:2225-2235.
41. Ganter C, Aftosmes-Tobio A, Chuang E, Blaine RE, Land T, Davison KK. Community stakeholders' perceptions of major factors influencing childhood obesity, the feasibility of programs addressing childhood obesity, and persisting gaps. *J Community Health.* 2016;41:305-314.
42. de Silva-Sanigorski AM, Bell AC, Kremer P, et al. Reducing obesity in early childhood: results from Romp & Chomp, an Australian community-wide intervention program. *Am J Clin Nutr.* 2010;91:831-840.
43. Lyn R, Aytur S, Davis TA, et al. Policy, systems, and environmental approaches for obesity prevention: a framework to inform local and state action. *J Public Health Manag Pract.* 2013;19(3 suppl 1):S23-S33.
44. Holden K, Akintobi T, Hopkins J, et al. Community engaged leadership to advance health equity and build healthier communities. *Soc Sci (Basel).* 2016;5:2.
45. Building Capacity for Obesity Prevention. Tools for Practitioners. <http://psereadi.org/>. Accessed October 9, 2018.

Check out JNEB's Impact, Speed, and Reach

Journal metrics provide insight into article impact, speed of publication, and article reach around the globe. Visit JNEB's metrics page to learn more about our articles and how they are used.

<https://journalinsights.elsevier.com/journals/1499-4046/>

