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early years is important for short- and long-term development across physical, mental, emotional, social, and academic domains (UNICEF 2013; Williams et al. 2002). Indeed, it is well established that consuming nutritious foods, engaging in regular play, and reducing screen time are all associated with positive developmental outcomes (Center on the Developing Child 2010; Karmarkar et al. 2009; Kenner and Gortmaker 2017; Sun et al 2015), while poor health practices increase the risk for acute and chronic disease, such as obesity, diabetes, hypertension, and cardiovascular disease (Eid 1970; Willers et al. 2012). Given that children in environments with fewer economic resources and more stressors are at even greater risk for disparate health and wellness (Benjamin-Neelon 2018; Brown et al. 2015; Center on the Developing Child 2010), children's ECE environments, particularly childcare programs, can be a pivotal mechanism in bridging the gap and shaping life-long health behaviors for children and their families.

Role of Early Care and Education (ECE) in Wellness Promotion

Approximately 36% of children under six years of age spend time in center-based care, with children spending an average of 30 h per week in these arrangements (U.S. Department of Education, 2016). Given the number of families reached and the extent of time children spend in non-parental care, ECE settings are an opportune environment to target children's health and wellness and support positive practices in the home. Best practices guidance for ECE programs emphasize prevention of childhood obesity and target the areas of nutrition (e.g., consumption of minimally-processed foods and offering water regularly), infant feeding (e.g., encouraging breastfeeding, following health bottle-feeding practices), physical activity (e.g., limiting seated activities and offering outdoor play opportunities), and screen time (e.g., limiting media viewing and access to screen media) (American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education 2012; Institute of Medicine 2011).

Despite this guidance, barriers such as cost, time, knowledge, training, and weather constraints all pose challenges to best practice implementation in ECE cent-

Summary

Given that building habits for lifelong health starts in early childhood, ECE settings present a unique opportunity to address children's health, particularly in communities at greater risk for poor health outcomes. Despite the role that ECE programs play in meeting children's health needs, centers still face many challenges in implementing best practices around health. Research suggests that developing written wellness policies helps ECE centers overcome implementation barriers, and that technical assistance and training for wellness policy interventions is helpful in supporting programs through the time-consuming and overwhelming process of writing policies. As policy development is important to ensure policies are tailored to center needs and may instill greater ownership (Norton et al. 2012), more research is needed to understand how technical assistance around policy development supports centers' implementation of best practices. In addition to policy development, education provided to program staff, children, and families, and the monitoring of policy implementation are all integral factors in creating and sustaining wellness improvements in ECE environments.

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centers to reflect on new or updated policies. For guidance and as examples, the WPW outlines national best practice guidelines for the education, standards, and environment in the areas of nutrition (e.g., meals, snacks, beverages), infant feeding (e.g., breastfeeding), physical activity (e.g., amount of structured and unstructured play time), and screen time (e.g., amount of time for use of computers and TV). After the WPW was completed, center directors chose wellness policies that meet the needs of, and align with, the available resources of their centers. Next, centers chose from a wide range of best practice guidelines to apply as center policies and were encouraged to adopt at least 10 policies; these policies were finalized and a Wellness Policy Poster (WPP) was created and hung at the entrance of centers for all (e.g., staff, families) to be aware of the center's commitment to those policies. During technical assistance, center staff were encouraged to engage families (e.g., workshops, newsletters, etc.) to align the home-school health environments for children. Centers were also encouraged to incorporate policies into staff and family handbooks. Action plans were then created to align and support the selected wellness policies into practice at the center and in the classroom.

Throughout the process of developing a WPP and for the remainder of the school year, technical assistance was individualized and provided at the request of the center staff. The CCS provided trainings to center staff, with some training provided in collaboration with local partners to aid in sustainability post-CCS implementation. The resources, tools, and technical assistance provided by CCS helped centers develop policies, as well as identify visible and measurable markers of progress with policy implementation and support sustainability for policy implementation. Providing health and wellness education to the ECE community that consistently and strategically monitors the center's wellness practices are central to moving from a written wellness policy to a sustained culture shift in the center's wellness environment; and this is a core idea of the HWTG.

Measures

Center Information and Demographics

During initial recruitment, centers completed a survey to provide basic information about staff and families served, such as number of staff, age range, and number of children and families served. See Table 2 for center characteristics.

Center Wellness Environment

A self-report survey (i.e., Center Director Survey, CDS) was developed for center directors, or other designated staff, to report center-level changes in the wellness environments. The CDS was developed by a team of researchers (including

a survey design expert) on the evaluation team. It was piloted and tested (through cognitive interviews and semi-structured interviews) with the CCS as well as a select few cohort 1 center directors before full implementation of the survey. The CDS assessed the ECE practices and policies on four key wellness areas including nutrition, infant feeding, physical activity, and screen time. Specifically, the CDS assessed whether the center had related written policies in each topic area; the frequency of related education or training offered; and the availability of resources. The CDS was a 10-item survey with a maximum score of 100. The CDS was developed by a team of researchers (including a survey design expert) on the evaluation team. It was piloted and tested (through cognitive interviews and semi-structured interviews) with the CCS as well as a select few cohort 1 center directors before full implementation of the survey. The CDS assessed the ECE practices and policies on four key wellness areas including nutrition, infant feeding, physical activity, and screen time. Specifically, the CDS assessed whether the center had related written policies in each topic area; the frequency of related education or training offered; and the availability of resources. The CDS was a 10-item survey with a maximum score of 100.

Table 3 Initial implementation and sustainability years by cohort

	2013–2014	2014–2015	2015–2016	2016–2017	2017–2018
Cohort 1					
Cohort 2					
Cohort 3					
Cohort 4					
Cohort 5					

Color Code
Initial Implementation
Sustainability

recruitment process, centers learned that the program was being evaluated by an independent research organization.

Prior to initiating work on the WPW, center directors completed the CDS survey in the fall of their first program year reflecting on the prior year. They also completed the survey in the spring following completion of the workbook and support from the CCS reflecting on the current academic year that they participated in the HWTG program. The survey was completed primarily via an online survey platform, though options for hard copy or phone interview formats were also available. There was a total of one cohort of centers, and center directors were asked to complete the survey again either subsequent spring. The first cohort of centers was followed over a 5-year period to determine if program outcomes were sustained over time.

Results

The results are presented separately for initial implementation and sustainability analyses (see Table 3 for breakdown by cohort, across years). Data from each cohort's initial implementation year were combined. Three main results are shared for each analysis: (1) centers' written wellness policies, (2) the education provided to teachers, children, and families, (3) and center directors' monitoring of wellness policies. Throughout the results section, the sample of centers used is the same across all measures, except for infant feeding. For measures related to infant feeding, only centers that served infants were included in the sample.

Initial Implementation

The initial implementation analysis results show the change in center outcomes from the fall to the spring of their first year of implementation, for all five cohorts.

Creation of wellness policies

The number of wellness policies that centers chose remained largely consistent for all five cohorts, with the average number of policies ranging from 15 to 20 each year (Table 4).

Selected policies covered the areas of nutrition, infant feeding, physical activity, screen time, or strategies to attain wellness. In cohort 5, the last cohort to choose wellness policies, the top 10 most popular policy topics were related to physical activity, nutrition, and center and community stakeholder engagement; specific policies that were selected most often are shown in Table 5.

Across all cohorts, the percentage of centers with written policies in a given topic significantly increased from the fall to the spring of their first year, across all topics (Fig. 1). The largest increase was for written policies on screen time; while 58% of centers had written policies on screen time in the fall, this increased to 84% of centers by the spring of their first year.

Education Provided

From fall to spring of their first year of implementation, the percentage of centers that provided education on HWTG topics to teachers, children, and families significantly increased across all five cohorts (Fig. 2). The threshold for education frequency was at least two times per year for teachers and

Table 4 Number of wellness policies chosen in first year, by cohort

Cohort	Average and range of number of wellness policies
1	15 (9–30)
2	15 (9–30)
3	20 (11–47)
4	15 (10–22)
5	15 (9–23)

families and at least three times per week for children (i.e., recommendation from the WPW and research). The topic with the largest increases in the percent of centers offering education on it from fall to spring for both teachers and



significantly increased from fall to spring for all topics in the implementation year (Fig. 3). The largest increase was for infant feeding, while 59% of center directors reported monitoring this policy in the fall, 73% reported monitoring this policy in the spring.

Sustainability

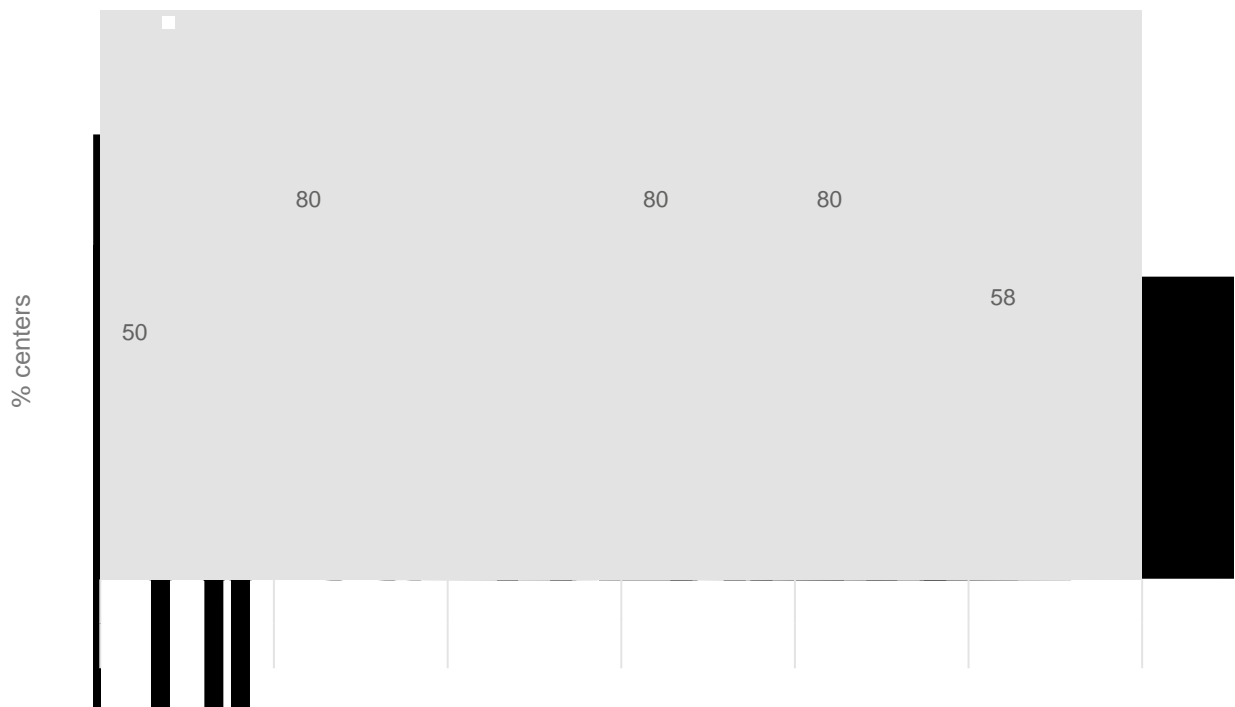
The sustainability analysis results show the change in center outcomes for the first cohort, across five years.

Education Provided

Improvements in the percentage of centers providing education in year 1 were maintained in years later; from year 1 to year 5, there was not a significant decrease in the percentage of centers providing education to children, families, and teachers in any topic for cohort 1 (Figs. 4, 5). However, there was some variation in the interim years, with the percent of centers providing education on nutrition and physical activity to families significantly declining from year 3 to year 5 (Fig. 4). Also, the percent of centers providing education on physical activity to teachers significantly declined from year 3 to year 4 (Fig. 5). The threshold for education frequency was at least two times per year for families and teachers and at least three times per week for children.

Monitoring of wellness policies

The percentage of center directors in cohort 1 monitoring their wellness policies (e.g., walk throughs, tracking parent feedback) did not significantly change from year 1 to year 5 (Fig. 6). All center directors reported monitoring their wellness policies on physical activity and screen time for the past three years. The same was true for monitoring of nutrition wellness policies, until year 5, though the decline was not statistically significant.



Discussion

This study examined whether Health Waiver Growth (HWTG), a training and technical assistance intervention, could help ECE center directors develop and implement

nding is not surprising given that states often lack guidelines around screen time. While all states have ECE licensing requirements or Quality Rating and Improvement System (QRIS) standards around health, eating and physical activity, only 29 states have guidelines around screen time (Warren et al.

center. Educating families on wellness policy topic areas

difficult to pinpoint what aspects of technical assistance are most effective. Nonetheless, the HWTG program prioritizes meeting the specific needs of a center and its students, staff, and families, rather than having one set approach to technical assistance that might obscure and fail to attend to a center's unique characteristics and needs.

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