REPORT

Comprehensive Obesity Prevention in Early Childhood

Promising Federal and State Initiatives

Patti Banghart

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NCCP

National Center for Children in Poverty
Mailman School of Public Health
Columbia University

The National Center for Children in Poverty (NCCP) is dedicated to promoting the economic security, health, and well-being of America's low-income families and children. Using research to inform policy and practice, NCCP seeks to advance family-oriented solutions and the strategic use of public resources at the state and national levels to ensure positive outcomes for the next generation. Founded in 1989 as a division of the Mailman School of Public Health at Columbia University, NCCP is a nonpartisan, public interest research organization.

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Introduction

The prevalence of obese and overweight children in the United States has nearly tripled during the past 30 years. In 2010, approximately 17 percent of all children and adolescents (ages 2-19) were obese (BMI is in the 95th percentile or above).[1] The number of obese children within each age group has also increased. Among preschool children aged 2 to 5, obesity increased from five percent to 10.4 percent between 1976-1980 and 2007-2008; from 6.5 percent to 19.6 percent among those aged 6 to 11; and among adolescents aged 12 to 19, obesity increased from five percent to 18.1 percent during the same period.[2] Being obese or overweight is harmful for a child's short-term and long-term development. Obese and overweight children are more likely to be sick more often, perform more poorly in school, have poorer emotional wellbeing, and are at greater risk for chronic health problems than children who are not obese or overweight.[3] Childhood obesity can also lead to an array of health problems later in life including a higher risk of being an obese adult.[4] Without concerted interventions to reduce childhood obesity, the life expectancy for today's children will be shorter than that of their parents.

Even the nation's youngest children are at risk for obesity. Approximately one of every four children ages 2 to 5 years in the United States has a high (>85th percentile) body mass index[5] and about one in 10 is obese (>95th percentile).[6] The increased number of obese and overweight children under 5 suggests that obesity prevention should occur early in life to be the most effective. Research indicates that food intake patterns are established in early childhood, predict a child's eating habits as an adult, and have long-term effects on health and metabolism.[7] Likewise, evidence suggests that higher levels of physical activity are associated with a reduced risk of excessive weight gain over time in younger children.[8] Parents and caregivers of young children, therefore, play a large role in helping children form healthy eating and physical activity habits.

Several new federal and state initiatives, as well as funding streams (see Box 1), aim to prevent childhood obesity – some of which contain an early childhood component. At the federal level, the "Let's Move!" campaign, chaired by First Lady Michelle Obama, enlists parents, youth, and organizations

from every sector to implement best practice interventions throughout the country with the goal of ending childhood obesity within a generation. As part of the campaign, President Obama created the first-ever national task force on childhood obesity to implement an inter-agency plan that details a coordinated strategy, identifies key benchmarks, and outlines action steps, aiming to reduce the childhood obesity rate to just five percent by 2030 – the national rate before childhood obesity first began to rise in the late 1970s. The "Let's Move" campaign establishes several recommendations and benchmarks for obesity prevention in early childhood, in areas such as: prenatal care, breast feeding, environmental factors, and child care settings. States across the nation have also launched various obesity prevention initiatives that are poised to make important contributions to the rapidly evolving national childhood obesity reduction campaigns. For instance, the National Governors Association's *Healthy Kids, Healthy America* program funded 15 states to develop policies to reduce childhood obesity. The resulting policy strategies – geared towards early childhood settings, school-age populations, or cross-system policy development – have produced both immediate results and long-term plans.[9]

While much attention has been focused on obesity prevention with school-age children, new policy initiatives are targeting early childhood programs in an effort to prevent obesity early. This report presents a range of early childhood obesity prevention initiatives to inform states of ways they can build strong cross-system efforts to reduce childhood obesity rates. The following sections include information on the following:

- the scope of the childhood obesity challenge in the U.S.;
- early care and education initiatives to prevent obesity;
- innovative state efforts;
- obesity prevention strategies in other early childhood systems; and
- state policy recommendations.

Box 1. Federal funding streams for childhood obesity prevention

Healthy Hunger Free Kids Act 2010: The Healthy, Hunger-Free Kids Act of 2010 authorized funding for federal school meal and child nutrition programs and increased access to healthy food for low-income children. The bill is also often referred to as the child nutrition reauthorization bill. This particular bill reauthorized child nutrition programs for five years and included $4.5 billion in new funding for these programs over 10 years. Many of the programs featured in the Act focus on schools and school meal programs, but the Act also promotes nutrition and wellness in child care settings through the federally-subsidized Child and Adult Care Food Program and expands support for breast-feeding through the WIC program.[10]

http://www.fns.usda.gov/cnd/governance/legislation/cnr_2010.htm

Children's Health Insurance Program Reauthorization Act (CHIPRA) 2009: This act authorized childhood obesity demonstration grants aimed at creating effective models for reducing childhood obesity. The Affordable Care Act provided $25 million in funding for these demonstration projects though 2013.

http://ccf.georgetown.edu/index/cms-filesystem-action?file=ccf%20publications/federal%20schip%20policy/quality%20paper%202-1.pdf

ARRA Prevention grants: The American Recovery and Reinvestment Act (ARRA) funded $373 million for obesity prevention through *Communities Putting Prevention to Work*. These grants expand the use of evidence-based strategies and programs and mobilize local resources at the community-level. The initiative has a strong emphasis on policy and environmental change at both the state and local levels that will increase levels of physical activity; improve nutrition; decrease obesity rates; and decrease smoking prevalence, teen smoking initiation, and exposure to second-hand smoke.

Localities in three states implemented the following early childhood obesity prevention initiatives:

- Wood County, WI: included the number of after-school and regulated child care programs that require daily physical activity as one of its indicators for health.
- Portland, ME: provided support for required daily structured physical activity in after-school/child care settings among its initiatives.
- Miami-Dade County, FL: among its' activities will work with child care facilities to increase the amount of physical activity.

http://www.hhs.gov/recovery/programs/cppw/factsheet.html#map

Demographic Disparities in Childhood Obesity

Being obese or overweight disproportionately affects low-income[11] children. In 2008, of low income children ages 2 to 5, 14.8 percent were obese.[12] Nearly 45 percent of all children (ages 10 to 17) living in poverty in 2007 were classified as overweight or obese, compared with only 22.2 percent of children living in households with incomes four times the poverty level.[13] Nine out of 10 states with the highest rates of obese children and adolescents are in the South, as are nine out of 10 states with the highest poverty rates in the country.[14]

Obesity rates among young children also vary by race and ethnicity. For children ages 2 to 5, the highest prevalence of obese and overweight children was seen in American Indians/Alaskan Natives (31 percent), followed by Hispanics/Latinos (22 percent) and African-American children (20.8 percent). In comparison, only about 15 percent of whites, and 12.8 percent Asians/Pacific Islanders were categorized as obese.[15]

What Factors Have Contributed to Increased Rates in Childhood Obesity?

The rise in childhood obesity has been attributed to a number of factors that have altered children's diet and physical activity, such as changes in the food market, the built environment (meaning a range of physical and social elements that make up the structure of a community), in schools and child care settings, and the role of parents. Increased consumption of convenience food, that is fast food or food away from home and soft drinks, increased portion sizes, the rising cost of healthful foods such as whole grains, fruits, and vegetables compared to convenience foods, and limited access to healthy food for some families, especially low-income families living in food deserts, are some of the food market changes correlated with increased obesity rates. Moreover, marketing and advertising practices for unhealthy foods targeted toward children may also be linked to childhood obesity rates.

More time spent in vehicles and, in some neighborhoods, the lack of safe environments for children to walk to school or play is related to a decrease in physical activity. Other factors include the types of food served in schools and child care centers and cuts in time and resources for physical activity to make room for more academics. Finally, changes in parents' employment patterns (for example, rise in maternal employment/two-earner families) may be related to increased consumption of foods of convenience, increased screen time (such as, use of television, computer, video, and video or electronic games), and increased time in child care. All of these contributing factors point to the need for every sector of American society – individuals, families, child care providers, schools, business and all levels of government – to be involved to increase children's opportunities for healthy living.[16]

Obesity Prevention Initiatives in Early Care and Education Settings

More than 60 percent of children in the United States under the age of 5 are in some type of non-parental child care on a regular basis,[17] and nearly three out of four children younger than 5 with employed mothers are regularly in non-parental child care.[18] Nearly half of children younger than five with a working mother are cared for in licensed settings: either in a child care center (32 percent) or a licensed family child care home (16 percent). Half of all children under the age of 6 spend time in license-exempt family, friend, and neighbor (FFN) care,[19] and nearly a quarter of school-age children are cared for by FFN caregivers.[20] Young children with employed parents also spend a considerable amount of time in child care arrangements. Approximately 80 percent of the children under the age of 5 with employed mothers and in a child care arrangement are in care for an average of almost 40 hours a week.[21]

With so many children spending significant amounts of time in child care, child care settings can play an important role in influencing children's health. Promoting health in children from birth to age 5 can significantly enhance school readiness and establish healthy lifestyle habits early in development. Child care settings can therefore be a source for obesity prevention through promotion of healthy eating, physical activity, and limited screen time. States are tackling obesity prevention through a range of early care and education initiatives.

Mechanisms for obesity prevention in child care systems may include:

- program standards and licensing regulations;
- quality rating and improvement systems;
- incentivized programs;
- child care health consultants/training; and
- nutrition and physical activity curricula.

Child Care Program Standards and Licensing Regulations

Federal Program Standards

Several federal programs influence children's health and nutrition in child care settings, including the Child Care Development Fund (CCDF), the Child and Adult Care Food Program (CACFP), and Head Start. The CCDF requires Lead Agencies in the States and Territories to ensure the health and safety of low-income children receiving subsidies in three broad areas: prevention and control of infectious diseases (including age-appropriate immunizations); building and physical premises safety; and minimum health and safety training appropriate to the provider settings. States and Territories must make certain that all providers who care for children receiving subsidies, with the exception of relative providers, meet health and safety standards either through licensure, regulations, or requirements designed by the lead agency for legally operating, license-exempt providers who care for CCDF children.[22] As discussed more below, state licensing agencies can help influence children's health by regulating nutrition and physical activity.

The Child and Adult Care Food Program (CACFP), administered by the Department of Agriculture, provides state grants for children's meals and snacks in child care. This entitlement program allows participating licensed child care centers, licensed family child care providers, after-school programs, and Head Start programs to receive reimbursement for the cost of food they serve. Licensed child care centers are eligible to participate based on non-profit status or if they serve 25 percent or more low-income children. Eligibility and reimbursement levels for licensed family child care homes (and license-exempt providers in some states or localities) are determined by the provider's income and the poverty rate of the provider's neighborhood or the income of the children served. Child care providers who receive these funds must meet meal

pattern requirements (for example, food groups offered and portion sizes). To be eligible for reimbursement, child care providers must supply meals that contain some or all of these four components (depending on the child's age): milk, vegetable or fruit, bread and grains, and meat and meat alternatives.[23] In 2010, on an average day CACFP served meals and snacks to over three million low-income children in participating licensed child care centers and family child care homes.[24]

Head Start serves over 900,000 (FY 2009) low-income, young children annually.[25] All Head Start programs must meet federal performance standards for health care services which includes meals, snacks, and nutrition education. To receive federal funding, program directors must develop local policies and practices that meet the federal standards, several of which involve obesity prevention. For example, to cover the costs of meals and snacks, programs must use funds from the U.S. Department of Agriculture (USDA) by participating in either the Child and Adult Care Food Program (CACFP) or the school meals programs (National School Lunch Program, National School Breakfast Program) and adhering to their nutritional requirements.

Head Start programs must also provide parent education and outreach activities related to health and other issues, and provide ongoing staff training and development,[26] which may be done through an established Training and Technical Assistance System. Federal legislation enacted in 2007 specifically requires staff training and technical assistance in obesity prevention.[27]

Local Head Start programs also have flexibility in how they fulfill program standards. Some research indicates, however, that programs may have difficulty in implementing policies and practices due to lack of time, money, and knowledge.[28] New Head Start initiatives such as "I am Moving I am Learning" help programs set goals around nutrition and physical activity (see curriculum section below for more information).

State Regulations

Each state sets and enforces its own child-care licensing regulations. Most states require both child care centers and family child-care providers to meet specific standards to obtain and maintain a license to operate. The health and safety of children in child care centers and family child care homes is included in these state licensing regulations. State regulations vary widely, with most states setting basic health and safety requirements such as child-staff ratios and indoor and outdoor space requirements. Very few states, however, have regulations for child care settings around nutrition and physical activity geared towards preventing obesity.

A 2008 review of state child care regulations for "high impact components" for obesity prevention (47 variables) in content areas such as infant feeding, nutrition, and physical activity showed that more than half of the states had no, or insufficient, obesity prevention terminology in their child care regulations for licensed child care centers and family child care homes; types of licensed child care did not vary in their use of obesity related terminology; and physical activity/screen time was the least addressed component. Delaware and Mississippi led the nation with the most obesity prevention terminology in their regulations (see Box 2 for more information on Delaware).

Studies indicate that participation in public programs, such as CACFP and Head Start, which set standards for nutrition, can improve the nutritional quality of food consumed in child care settings.[29] Most child care centers outside these programs, however, have inadequate nutritional standards. Only nine states have regulations prohibiting foods of low nutritional value in licensed centers.

The survey also found only three states required a specified number of minutes of physical activity per day. Alaska and Delaware mandated that children engage in 20 minutes of moderate to vigorous physical activity for every three hours the child-care centers and family child-care homes were open between 7 a.m. and 7 p.m. Massachusetts requires

Box 2. The State of Delaware's Improvements to Nutrition and Physical Activity Regulations

To address childhood obesity, Delaware was one of the first states in the nation to implement nutrition and physical activity regulations through child care policy changes. Driven by advocacy from the Delaware based non-profit – Nemours Health and Prevention Services (NHPS) – the state used a multi-sector approach:

1) Regulatory changes through the Office of Child Care Licensing (OCCL) for all licensed child care in 2007 (reflecting the "5-2-1 Almost None" formula: eating at least five servings of fruits and vegetables a day, limiting screen time to no more than two hours a day, getting at least one hour of physical activity a day, and drinking almost no sugary beverages) included:

- for every three hours a child is in a program, 20 minutes of moderate to vigorous physical activity will be planned and implemented;
- while awake, infants are limited to 30 minutes of time spent in swings, strollers and other confining equipment; and
- use of TV, videos, video games, etc. is prohibited for children under age 2 and limited to no more than one hour for older children. Parent permission is required for use of any media.

2) Nutrition regulations were updated for the Delaware Child and Adult Care Food Program (CACFP) to improve food and beverage offerings in all licensed child care. All licensed centers and family child care providers must adhere to the Delaware CACFP nutrition requirements, whether or not the program participates in CACFP.

3) The Delaware Stars for Early Success, the state's quality rating and improvement system, was implemented and included language in the legislation that acknowledges the health, physical, and emotional development of children to promote the creation of specific standards around physical and emotional health.

4) Healthy eating and age-appropriate, best practices in physical activity were built into the state's training and professional development. These included healthy eating and physical activity topics in CACFP sponsored trainings; required OCCL orientations for new providers, and required basic certification programs; as well as collaborating with state community colleges to incorporate such practices into required classes for early childhood degree programs.

http://www.nemours.org/content/dam/nemours/www/filebox/service/preventive/nhps/publication/nhpsadminguide.pdf

30 minutes of daily physical activity for all children in family child-care homes.[30]

Less than half (17) of all states regulate screen time for young children in child-care settings. The American Academy of Pediatrics (AAP) recommends that children under the age of 2 not watch any television, and that preschool children over the age of 2 accumulate no more than two hours of screen time daily (See Box 3 for an overview of AAP recommendations).[31] A recent study found that 70 percent of children 2 years old and younger exceeded the AAP guidelines (for example, watched some television).[32] In a recent 50-state survey of state child-care licensing statutes, researchers found that only 17 states regulated screen time in child-care centers and only 15 states regulated screen time in family child-care settings.[33]

Box 3. The American Academy of Pediatrics (AAP) recommended standards for policies around nutrition, physical activity, and screen time

- Nutrition: the facility should provide nourishing and attractive food for children according to a written plan developed by a nutritionist; they should obtain a written history of any special nutrition or feeding needs of the child; they should adopt the USDA CACFP nutrition guidelines (AAP also provides food standards and meal and snack patterns).
- Physical activity: the facility should provide active opportunities for physical activity and play-time (outdoors and indoors); and there should be policies and practices around providers/teachers encouraging physical activity.
- Screen time: the facility should limit the amount of media and computer time for children.
- Health supervision: the facility should require that each child has a routine screening test, immunizations, and chronic or acute illness monitoring by the child's primary care physician. This should also include an evaluation of nutrition-related medical problems such as failure-to-thrive, overweight, obesity, etc.

American Academy of Pediatrics, American Public Health Association, and National Resource Center for Health and Safety in Child Care and Early Education. 2010. *Preventing Childhood Obesity in Early Care and Education: Selected Standards from Caring for Our Children: National Health and Safety Performance Standards; Guidelines for Early Care and Education Programs, 3rd Edition.* http://nrckids.org/CFOC3/PDFVersion/preventing _obesity.pdf

Quality Rating and Improvement Systems (QRIS)

Quality Rating and Improvement Systems (QRIS) offer another opportunity for state-level health promotion and prevention of obesity in child care settings. Implemented statewide in 25 states (as of mid-2011),[34] QRIS are a method to measure, recognize, and improve the quality of care being provided in early care and education programs. In addition to providing benchmarks for individual care settings, these systems provide a way to reward early childhood programs in their efforts to continually improve the quality of care they offer, and can help parents and caregivers in their child care decision-making.

According to interviews with key informants conducted in the spring of 2011, seven states (WI, SC, ND, MD, DE, AK, and AZ) with either fully or partially implemented or pilot QRIS programs indicated that they are integrating obesity prevention standards on nutrition, physical activity, and screen time into their QRIS.[35, 36] In addition to setting standards, all of these states also indicated that they are providing technical assistance, training, and other resources such as financial incentives to help programs meet these standards. Monitoring strategies are also being used to determine whether programs are complying with standards. For example, program documents such as lesson plans, menus, training certifications, or Environmental Rating Scales are required, or a few states are using assessments such as the Nutrition and Physical Activity Self Assessment for Child Care (NAP SACC) and the Environment and Policy Assessment and Observation (EPAO) tool to monitor their nutrition and physical activity standards. The following describes three state approaches to implementing obesity prevention standards.

Arkansas – Better Beginnings
http://www.arbetterbeginnings.com

The development of a quality rating improvement system in Arkansas grew out of the work of the state's Early Childhood Comprehensive Systems (ECCS) initiative. *Better Beginnings* – Arkansas' voluntary, statewide QRIS – is housed in the Division of Child Care and Early Childhood Education at the Arkansas Department of Human Services. In order to receive a particular rating, programs must meet the standards for that rating in each of the five component areas, including the child health and development component.

During the creation of Better Beginnings, work groups were established across the five domains[37] of the ECCS initiative. Based on statewide data that had been collected on the status of young children's health in Arkansas, members of the "social emotional health" and "medical home" work groups were successful in advocating for the inclusion of a "Child Health and Development" component within the standards. Several nutrition and physical activity standards – such as creating a daily, age appropriate physical activity plan – are embedded in the professional development, learning environment, and child health and development QRIS categories. There is interest in adding NAP SACC self-assessment as a standard for Better Beginnings at the new level 4 and some nutrition and curriculum components at new levels 4 and 5.

North Dakota's pilot QRIS
http://ndc.ndgrowingfutures.org/stars/ecris

The North Dakota early childhood rating and improvement pilot system requires centers to adhere to a number of obesity prevention standards in a "Healthy Living" component across all five star levels. At the first star level, providers must create a written Healthy Living Policy. This policy might include standards such as all children spend at least 60 minutes in active play; all children play outside for at least 30 minutes; screen time is limited; or nutrition guidelines. Star level 2 requires providers to create healthy eating menus and physical activity plan. Star level 3 providers must complete a healthy living Nutrition and Physical Activity Self-Assessment for Child Care (NAPSACC) self-assessment. At star level 4 providers must have a healthy living Environment and Policy Assessment and Observation (EPAO) completed by an Early-Childhood-Rating-and-Improvement-System-endorsed observer and achieve a passing score, as

well as help educate parents about healthy eating and activity for their children through distribution of parent education materials. Finally at star level 5, providers must again complete a healthy living Environment and Policy Assessment and Observation (EPAO) by an endorsed observer and achieve an improved score.

Wisconsin – YoungStar
http://dcf.wi.gov/youngstar

Wisconsin's quality rating improvement system " YoungStar," has a five-star rating scale built on the foundation of child care regulation. The quality rating system is based on four key quality indicators, including health and wellbeing. This indicator involves health and nutrition activities, the ability to address needs of children with special needs, and the capacity to address child abuse and neglect. Examples of specific ways providers could earn credit in the health and wellbeing quality indicator related to obesity prevention include participating in CACFP, ensuring children receive 60 minutes of physical activity per day, and providing menus to families.

Incentivized Programs

An emerging strategy for encouraging child care providers to adopt obesity prevention practices is incentive programs sponsored by state governments. These programs provide payments to regulated child care programs that provide healthy foods and limit calorie-dense, nutrient poor foods and promote physical activity. Tennessee's *Gold Sneaker Initiative* is one such program.

Tennessee – the Gold Sneaker initiative

The *Gold Sneaker* initiative was launched in Tennessee in 2008 to enhance policy related to physical activity and nutrition within licensed child care facilities across the state. This voluntary program is open to any licensed child care facility (including licensed family child care homes and group homes) in Tennessee. The *Gold Sneaker* effort offers a special designation to child care programs after participating in training and adopting the requisite policies. Child care facilities that complete the training and implement the recommended physical activity, nutrition, and tobacco policies earn a *Gold Sneaker* awards and are designated as *Gold Sneaker* child care programs. Providers can use the sneaker logo for marketing purposes to help encourage parents to select such programs. The initiative has reached 3,400 child care workers at about 500 child care facilities across the state since its inception in 2008.[38]

In order to receive a *Gold Sneaker* award, providers must implement the following eight physical activity and nutrition policies:

Physical Activity:

1) Children ages 12 months or older attending a full day program shall be offered at least 60 minutes of physical activity per day, either indoors or outdoors. Children attending less than a full day program shall be offered a proportional amount of such activities. For children ages 3 and older, this physical activity must be a balance of free play, teacher-directed activities, and music and movement. This must be documented in the daily schedule and on lesson plan forms.
2) Viewing of television, videos and other visual recordings shall be limited to no more than 60 minutes per day of educational programs or programs that actively engage child movement. Children attending less than a full day program shall be limited to a proportionate amount of such viewing.
3) Children shall not be allowed to remain sedentary or to sit passively for more than 60 minutes continuously, except for scheduled rest or naptime.
4) Child care facilities must ensure physical activity is a positive experience for children and is never used negatively or to control behavior.

Nutrition:

5) Ensure appropriate infant and child feeding patterns, including breastfeeding. Staff will be sensitive to breastfeeding mothers and infants, and their eating patterns. Each infant will have a feeding plan on file, which is completed by the parent/parents and facility as a team to address their unique feeding patterns.

6) Ensure appropriate infant and child feeding patterns, including adequate time for meal consumption. Adequate time for meals and snacks will be allowed for all children, and will be included in classroom schedules.
7) Ensure appropriate infant and child feeding patterns, including appropriate portion sizes. Appropriate portion sizes will be assured through staff training and adherence to portion sizes as found in child care licensing regulations.
8) All eating opportunities should consist of a respect for the child and promoting a positive attitude toward food. Food shall never be used as rewards for children.

The program is housed in the state Department of Health and funded through a Communities Putting Prevention to Work (CPPW) grant made available through the American Recovery and Reinvestment Act (ARRA). *Gold Sneaker* works in collaboration with the Department of Human Services, as well as the United Way and YMCA of Tennessee. For monitoring and accountability, DOH performs site visits with at least 20 percent of all Gold Sneaker child care facilities. During this site visit, physical activities with children of varying age groups are observed, required documentation of physical activities is evaluated, classroom lesson plans are observed – paying particular attention to the inclusion of adequate time for the required physical activity and adequate time for consuming meals and snacks – breastfeeding and infant feeding plans are reviewed to assure completion by the family and the facility, and the facility's policies are reviewed to assure the relevant physical activity and nutrition information is included.

Child Care Health Consultants and Training

Child care health consultants are experts in pediatric health care and child development. They support providers' knowledge of child care licensing requirements, current health and safety trends, and available health resources to promote children's healthy development. Typical services consultants might offer include written health and safety policy review, on-site health and safety and nutrition consultation or assessment, establishing links between the facility and community resources, health and safety education materials, health and safety education classes for staff and parents, child care health and safety products and supplies, and care plan development and assistance for children with special needs.

As part of routine health supervision, a primary care physician should evaluate a child for nutrition-related medical problems such as failure to thrive, overweight, obesity, and food allergies. Some research indicates that these nutritional screenings are not as common as they should be. Child care health consultants can help incorporate these screenings at child care facilities to help promote children's health or help child care providers ensure that documentation of these screenings from their primary care physician is on file.

Assessments with Health Consultants: NAPSACC

The Nutrition and Physical Activity Self-Assessment for Child Care (NAPSACC) program is a research-tested intervention designed to enhance policies, practices, and environments in child care by improving the nutritional quality of food served, amount and quality of physical activity, staff-child interactions, facility nutrition and physical activity policies and practices, and related environmental characteristics. NAPSACC uses an organizational assessment of 14 areas of nutrition and physical activity policy, practices, and environments to identify the strengths and limitations of the child care facility. Following the self-assessment, a health consultant (meaning, a child care health consultant, nurse, health educator or other trained professional) works with the child care facility staff to set goals for change and develop plans for follow-up actions to improve practice. Collaborative goal setting is followed by staff training and targeted technical assistance to promote organizational change. The program has been implemented statewide in North Carolina and is emerging in other states as well. An evaluation of the 6-month NAPSACC intervention in 96 centers in North Carolina found improvements in nutrition and physical activity which were not found in the comparison group.[39]

Nutrition and Physical Activity Curricula

Nutrition and physical activity education programs are also being integrated into child care settings to help children build healthy habits. These curricula are designed to help providers integrate education on healthy food choices and incorporate more physical activity into everyday routines. So far, little is known about how most of these new curricula are implemented or how they affect children's health outcomes. Below we present examples of two nutrition and physical activity curricula which have benefitted from formative implementation evaluations.

Head Start– *I am Moving, I am Learning*

The Head Start program enhancement *I Am Moving, I Am Learning* (*IM/IL*), was created to help prevent obesity in preschoolers enrolled in Head Start, recognizing that a young child's weight is affected by their preschool, home, and community environments. The program is intended to: (1) increase the quantity of time children spend in moderate to vigorous physical activity during their daily routine; (2) improve the quality of structured movement activities facilitated by teachers and adults; and (3) promote healthy food choices for children each day. IM/IL is not a stand-alone curriculum or a prescriptive program. Rather, it provides a flexible framework of strategies and resources – such as music and CD's with the IM/IL mascot "Choosy" (Choose Healthy Options Often and Start Young) – that can be used to design an individualized program enhancement that fits unique program needs and can be integrated into ongoing routines and practices. Individual programs decide to whom they would like to target the IM/IL enhancement: children, parents, staff, and/or the broader community. The curriculum was designed to fit seamlessly with Head Start program standards around nutrition and physical activity.[40]

An evaluation of IM/IL with 26 selected participating Head Start programs revealed programs reported they had implemented one or more IM/IL program enhancements and were planning to continue or expand their efforts during the following (2007-2008) program year; staff were enthusiastic about IM/IL, particularly about the music and movement activities, which they reported were easily integrated into daily activities in Head Start classrooms and as part of home visits; program administrators, classroom teachers, and home visitors reported they had increased children's movement time and improved the food choices available to children; and all 26 programs targeted children, and 17 of the programs targeted parents as well.

Color Me Healthy

This curriculum is designed to increase physical activity and promote healthy eating among children aged 4 and 5 years in child care and preschool settings. *Color Me Healthy* incorporates color, music, and the senses to teach children that healthy food and physical activity are fun. The curriculum includes a teacher's manual, picture cards, classroom posters, hand stamps, and parent newsletters to help reinforce lessons about healthy eating and physical activity at home. Core elements of the curriculum include: training for child care providers through a train-the-trainer model, curriculum and teaching materials for teachers, developmentally appropriate lessons and activities, *Color Me Healthy* music, and reinforcing the lessons in the classroom environment (e.g. classroom posters).

A survey evaluation of a large sample of providers participating in the eight-week *Color Me Healthy* intervention revealed that 91 percent of providers increased their knowledge about healthy eating and activity and 92 percent increased the physical activity of children in their care.[41] Other research found that when presented with a fruit or vegetable snack, children who participated in the *Color Me Healthy* program increased fruit snack consumption by approximately 21 percent and vegetable snack consumption by about 33 percent within their child care centers at 3 months after completion of the *CMH* program. These effects were determined by objective measurements of the amount of snacks consumed.[42]

Obesity Prevention Initiatives Outside of Early Care and Education Settings

In addition to early care and education, other programs serving young children and their families, such as the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) and medical homes, have also implemented initiatives to prevent obesity. Such initiatives help reach children and families outside of child care and support prenatal care – which can play a large role in determining a child's healthy weight.

Efforts through WIC

Prenatal and early childhood nutrition has life-long impacts on health. A lack of nutritious food during pregnancy increases the risk of low birth weight; brain, neural, and physical defects; and adverse effects on long-term health, growth, and developmental trajectories.[43] Research shows that children from low-income, food insecure households suffer from a host of poorer health outcomes and experience more hospitalizations than children from low-income, food secure homes.[44] Low birth weight infants from food insecure families are nearly 28 times more likely than their peers to be overweight or obese by the age of 4 ½.[45]

WIC is a federally funded program which provides economic supports to purchase nutritionally balanced foods, nutrition education, breastfeeding instruction and promotion, nutrition counseling, and referrals to health and other social services. WIC targets low-income, pregnant, postpartum, and breastfeeding women, infants and children under age 5 who are at nutritional risk. In FY 2010, WIC served 9.17 million women, infants, and children per month.[46] WIC's broad access to the population of young, low-income children at greatest risk for obesity makes it especially well positioned to reach that population at an early stage.

Early on, in 1999, USDA's Food and Nutrition Service (FNS) launched its WIC Obesity Prevention Projects to identify and test ways that WIC could better address childhood obesity. Five WIC agencies across five states (California, Arizona, Kentucky, Vermont, and Virginia) were awarded funding to develop and assess interventions. These projects evolved collectively into "*Fit WIC*." These five agencies shared information and ideas over the three-year funding term.[47] States developed the following:

- Intertribal Council of Arizona *Fit WIC*: Designed their intervention to target WIC staff, WIC parents, and WIC children. *Fit WIC* sites offered physical activities and healthy snacks for children.
- California *Fit WIC*: Focused on WIC's influence on obesity prevention in the community. The project involved several interventions aimed at WIC staff, WIC participants, and the community. These interventions included integrating physical activity into the WIC program, developing a community garden, and partnering with local restaurants to encourage more fruit and vegetable consumption.
- Kentucky *Fit WIC*: Established collaboration around obesity between the Kentucky WIC Program and the Children's Hospital Medical Center. The project addressed the problem of childhood obesity by creating an informational video for WIC staff and health professionals on obesity in 2- to 5-year-old children, aimed at changing these professionals' attitudes and perceptions to better understand the issue from the client's perspective.
- Vermont *Fit WIC*: The Vermont project's goal was to increase physical activity and decrease sedentary time for 3 and 4 year olds. They developed the "Fit WIC Activity Kit" in response to information they collected indicating that parents valued physical activity as a healthy behavior for their children, but were unsure about the types or amounts that would be appropriate for their preschoolers. The Activity Kit contains a variety of written materials and hands-on items to help WIC families overcome

barriers to, and increase opportunities for, active physical play.

- Virginia *Fit WIC*: Focused on parent education. They developed six key messages for parents about foods, beverages, physical activity, and television-viewing, then focused on these messages during group classes. WIC staff members were encouraged to serve as positive role models, so the Fit WIC program included regular wellness challenges for them, as well. By the end of the study period, parents who participated in Fit WIC reported offering water (rather than soft drinks) to their children more often and using community centers more often.

Efforts Through Medical Homes and Pediatric Practice

Medical homes are another source for identifying children at risk of obesity and promoting obesity prevention. Screening children for the presence of factors that have been associated with an increased risk of obesity is the principal method of determining which children are candidates for secondary prevention efforts. Screening for these risk factors involves assessing factors from the history and from observations of an infant or child's growth pattern. Primary prevention efforts of medical homes include guidance around and encouragement of breastfeeding, since studies have suggested that children who are breastfed have a lower incidence of obesity; more physical activity and less sedentary time, including screen time; no or almost no sweetened beverages; and consumption of fruits and vegetables.[48]

State Examples of Obesity Prevention in Medical Homes

Nebraska: The Nebraska Medical Association's Childhood Obesity Prevention Project mission is to mobilize and engage physicians as advocates in their practices, communities, and for statewide policies to prevent overweight and obesity in Nebraska children. To carry out its mission, the Childhood Obesity Prevention Project provides education and clinical resources, community outreach, and policy and advocacy. A Clinical Childhood Obesity Model was developed to assist healthcare providers to incorporate the Expert Committee Recommendations (to assess, prevent, and treat) into practice. It is a comprehensive model which includes:

- healthcare provider toolkit;
- pocket reference algorithm;
- Youth Physical Activity and Nutrition (PA-N) assessment form;
- training video;
- office posters; and
- patient education brochures.

Trenton, New Jersey: The NJ Pediatric Council on Research and Education implemented an Obesity Prevention program in 2008, jointly funded by the NJ Department of Health and Senior Services, Division of Family Health Services and Children's Futures organization. The program provides office-based obesity prevention and care management training to 11 pediatric/family practitioners in the Trenton metropolitan area, using the EPIC (Educating Practices In their Communities) model. The Obesity Prevention curriculum introduces age-appropriate anticipatory guidance and messages, in an effort to establish sound nutrition and activity advice within the context of the medical home. Partnerships with community-based organizations and state and local agencies were created so that the office staff is empowered to initiate sustainable office-based change for their patients and families. Each office received bilingual educational materials to use when interfacing with patients and their families. Chart reviews and pre- and post-training surveys will be conducted to evaluate the program outcomes.

Conclusions and Policy Recommendations

Federal and State governments are implementing a number of strategies to prevent obesity through early care and education settings and other early childhood initiatives. This report highlights the range of strategies that states can consider to help prevent obesity. It also highlights the need for coordinated approaches across early care and education systems and other early childhood systems to help reach children and families, both in and out of early care and education settings. This review of obesity prevention strategies suggests several policy actions states can consider for a comprehensive approach for preventing obesity in early childhood.

Enhancing child care licensing regulations on nutrition and physical activity may help prevent obesity. Regulations vary considerably from state to state and few adequately address children's nutrition, physical activity, and screen time. While more research is needed to understand how regulations might impact childhood obesity, states should consider, through child care licensing policy, prohibiting foods of low nutritional value or requiring licensed centers and homes to adhere to CACFP guidelines; specifying the amount of time children should spend in physical activity; and limiting the amount of children's screen time.

Expanding nutrition programs such as WIC and CACFP can help reach food insecure families with infants and toddlers. CACFP is the largest food assistance program for low-income children in child care and WIC reaches low-income parents directly, however barriers exist for families to participate. Some research indicates that providers participating in the CACFP struggle with a gap between the CACFP reimbursement they receive and the actual cost of meeting program requirements. The result has been a decline in participation, particularly among family child care providers. Families may also encounter administrative barriers in the application process for WIC. States should encourage joint application and recertification forms for multiple benefit programs such as the Supplemental Nutrition Assistance Program and the Children's Health Insurance Program.

States can promote healthy nutrition and physical activity through QRIS or incentive programs. Few states with a fully implemented QRIS currently incorporate health related standards into their QRIS since this has traditionally been a responsibility of licensing policy. However, North Dakota's QRIS serves as an example of how voluntary nutrition and physical activity standards can be built into each quality level, and how child care nutrition and physical activity assessments, such as NAPSACC, can be used to improve nutritional quality of food served, amount and quality of physical activity, staff-child interactions, facility nutrition and physical activity policies and practices, and related environmental characteristics. In addition to QRIS, government subsidized incentive programs, such as in Tennessee, also promote voluntary nutrition and physical activity standards and training opportunities for child care providers.

Child care health consultants and pediatric medical homes can help promote healthy nutrition and physical activity practices. Child care health consultants can offer training to child care providers on nutrition and physical activity, particularly new nutrition and physical activity curricula being developed, as well as education materials that can be offered to parents. They can also offer assistance in screening children for nutrition-related health concerns and help providers track children's nutrition needs and menu planning. Pediatric medical homes can screen for children's risk of obesity and offer guidance to parents on breastfeeding practices, and nutrition and physical activity.

Obesity prevention initiatives should be coordinated at the state-level. As this report demonstrates, there are a range of obesity prevention initiatives and opportunities to reach young children. There have also been a number of federal funding streams to promote obesity prevention. Many of these initiatives have been piecemeal at the state level, however. A coordinated approach to obesity prevention for young children among early childhood systems is needed.

Early Childhood Comprehensive Systems Coordinators can foster needed coordination across agencies and promote involvement by parents and community-based organizations, both critical in the campaign to reverse the obesity epidemic, as well as advocate for changes in the infrastructure of early child care systems particularly communications, family leadership development, provider/practitioner support, standards and monitoring and accountability. Early Childhood Advisory Councils are also positioned to help facilitate a comprehensive plan for obesity prevention.

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