

Early Child Care and Education: A Key Component of Obesity Prevention in Infancy

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We are now in the fourth decade of the childhood obesity epidemic, and our increased understanding of the impact of stress, early environments, early feeding, and activity and/or inactivity patterns on obesity risk has focused our attention on our youngest children.¹ During these early years, risk factors for obesity are associated with later obesity and racial and/or ethnic disparities² in childhood, adolescence, and adulthood.³

Pre- and postnatal risk factors for obesity include higher maternal prepregnancy BMI, maternal excess gestational weight gain, gestational diabetes, prenatal tobacco exposure, high infant birth weight, and rapid weight gain in infancy, child care attendance, low strength of maternal-infant relationship, low socioeconomic status, shortened infant sleep, inappropriate bottle use, introduction of solid food before age 4 months, infant antibiotic exposure, sugar sweetened beverage intake, infant feeding patterns high in energy density, and a nighttime feeding pattern. Protective factors include caregiver responsive feeding practices and breastfeeding.²⁻⁷

Recommendations to address these risk factors for obesity by prevention in early child care have been made by the Institute of Medicine,⁴ the US Department of Agriculture,⁸ the American Academy of Pediatrics, and American Public Health Association.⁹ Child care has been the focus for obesity prevention for many reasons:

1. Sixty-one percent (12 500 000) of US preschool-aged children are in some care arrangement other than parental care,¹⁰ and of the 63% of mothers with young children in the labor force, ~80% place their children in nonparental care arrangements for an average of ~40 hours a week.¹¹
2. Children who attend center-based child care can get as much as 67% of their daily dietary intake while in care.¹²
3. Both center- and home-based child care are subject to state and sometimes local or federal regulatory control, representing an opportunity to influence nutrition and feeding practices in a systematic way.
4. Certain child care settings can either promote or reduce obesity risk. Time in home child care during infancy has been shown to be associated with increased BMI z score at age 3 years,¹³ whereas Head Start attendance was associated with a decrease in BMI z score among children who already were overweight or obese.¹⁴
5. Child care centers have been the site of successful multicomponent intervention trials to prevent excess weight gain, particularly for children at higher risk such as those in higher weight categories and children with lower socioeconomic status.¹⁵

In this issue of *Pediatrics*, Benjamin-Neelon et al¹⁶ focused on 10 infant

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feeding standards from the American Academy of Pediatrics' *Caring for Our Children* guidelines for out-of-home child care programs (2011)⁹ and reviewed progress in states' regulation of early infant feeding practices between 2008 and 2016. Encouragingly, all but 2 states had increased regulations concerning infant feeding in most categories in both center and home care sites.

This improvement in the early childhood day care regulatory environment is welcome and an essential step toward implementation of obesity prevention in the infant population. However, there remain barriers to implementation at the individual child care level, such as addressing a caregiver's cultural beliefs and practices related to child feeding and reported difficulties working with parents to provide consistent messages in the child's environment as well as additional training needed for specific child feeding policies.¹⁷ Ethnic differences have also been found to affect attitudes about feeding policies.¹⁸ On the basis of obesity intervention trials in child care, multilevel interventions that are focused on the child care center environment, policies and practices, staff training, and personal health in addition to child engagement, parental support, and outreach would be a goal for future obesity-prevention interventions and is consistent with obesity prevention recommendations.¹⁵

As we think about implementation of obesity prevention strategies, it is worth looking at where our youngest children spend their time. A Census Bureau report (2011)¹⁸ found that of 61% of the 20 400 000 children <5 years old in child care, 24% were regularly cared for by a grandparent, 18% by their father, 13% were in center care, 7% cared for by other relatives, 11% by nonrelatives, 6% in nursery or preschool, 5% in family day care, and 3% were cared for

by siblings. Children of employed mothers were more likely to be in multiple child care arrangements than children of unemployed mothers (53% and 39%). Children of employed mothers who were in multiple child care arrangements were more likely to be cared for by grandparents, a nonrelative in the child's home, other nonrelative care, or cared for in a nursery, preschool, or family day care than in a day care center. Children of nonemployed mothers in multiple child care arrangements were less likely to be in nursery or preschool and more likely to be taken care of by a nonrelative in the child's home.¹⁹

Given the multiple child care arrangements experienced by preschool-aged children and the fact that the greatest association between being overweight and having obesity is related to care by relatives and nonrelatives in informal care,²⁰ there is a need to develop an integrated, child-centered approach for obesity prevention that can take into consideration the multiple different child care environments and individuals involved in the nutritional well-being of young children.

There are many organizations and providers focused on nutrition education, developing parenting, feeding, and nutrition skills, and increasing access to healthy food and many venues in which parents and families can access this information, including the pediatricians' office, Women, Infants, and Children Food and Nutrition Service program, Supplemental Nutrition Assistance Program education, community parenting programs, Internet sites, and books.

On the basis of our current progress, we are poised to take the next steps in obesity prevention and treatment of our infants. First, we need to take a population approach to building the foundations for parent and caregiver skills, knowledge, and resources for infant feeding across all sectors.

This includes developing simple, public, and consistent messaging about evidence-based strategies for obesity prevention in this age group. It is important to understand individual and cultural barriers to implementing healthy infant feeding practices and address them in ways that empower all caregivers. We need to consider the constellation of individuals and multiple sites that care for and feed infants and create approaches that can more effectively provide outreach and education to grandparents, fathers, and relative and nonrelative caregivers (as well as care givers at child care centers) and develop ways to effectively connect to the infant's family and to each other. Attention to the nutritional needs of infants should become a national priority, essential to ensuring the foundations of health for all children and the health of our population.

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