

Overweight and Obesity, Food Insecurity, and Physical Inactivity in Nebraska Children

With 1 in 3 children at an overweight or obese health status, and nearly 90,000 children considered food insecure, Nebraska faces a health crisis due to the negative long-term health and social outcomes related to these health indicators.ⁱⁱⁱ Obesity, food insecurity, and physical inactivity are risk factors not only for chronic disease such as heart disease and diabetes, but also impact a child's mental and medical health, oral health, educational attainment, life expectancy, and overall life course trajectory.ⁱⁱⁱ Obesity and its related health problems also negatively affect the U.S. health care system by increasing the cost for treatment of obesity-related diseases.^{iv}

The Hunger-Obesity Paradigm acknowledges the important relationship between obesity and food insecurity, defined as access by all people at all times to enough nutritious food for an active, healthy life. This paradigm illustrates that individuals who live in food insecure households experience hunger, leading to unhealthy eating behaviors such as feast or famine eating style, low intake of fruits and vegetables, high intake of high calorie/low nutrient dense foods and use of food as a mechanism to cope with stress.^v Data suggest that if unaddressed, food insecurity is likely to increase for children.

Approximately 29% of Nebraska's children and adolescents (10-17 years) are obese (BMI ≥ 30.0) or overweight (BMI 25.0-29.9).^{vi} While state data are not readily available for the target age range of 1 – 9 years, data from several local areas are available, and indicate similar levels of overweight and obesity as are reported for ages 10 – 19 years. For example, the proportion of overweight or obese children is 34.3% in Douglas County (ages 5 – 12 years)^{vii} and 37.2% in the East Central District (K-6th grade).^{viii} Data show the importance of early intervention in that obese preschool-aged children are five times more likely to be overweight during adolescence and more than four times as likely to be obese adults when compared to their normal weight counterparts.^{ix}

Importantly, the many factors that contribute to an unhealthy weight including physical inactivity and food insecurity have similar impacts on long-term chronic disease risk and other health determinants like education attainment and mental health. Therefore these indicators, (e.g., food insecurity, engagement in physical activity, screen time, and access to safe neighborhoods) should also be considered as part of a comprehensive approach to reducing this public health issue.

Criterion 1: The Problem is Worse than the Benchmark or Increasing

For all key indicators, the problem in Nebraska is either worsening (Food Insecurity) or exhibits no change (Overweight/Obesity, Physical Inactivity) as shown in Table 1. While there has been no change in childhood overweight/obesity since 2007, childhood obesity has more than doubled in children and quadrupled in adolescents in the past 30 years.^{x,xi} Nebraska ranked 31 of 50 states in childhood obesity prevalence in 2007, compared to a ranking of 10 in 2003 (1 is the best).^{xii}

Critical to note is the substantial worsening of indicators of food insecurity:

- Children participating in SNAP rose from 15.9% (2009) to 20.1% (2013).^{xiii}
- Children eligible for free and reduced meals increased from 36% (2008/09) to 44.2% (2012/13).
- Nebraska is ranked 49th out of 50 states in school breakfast participation (a key strategy for improving food security in children). Only 39% of eligible children participate in a school breakfast program and less than 10% are taking advantage of summer meal programs.^{xiv}

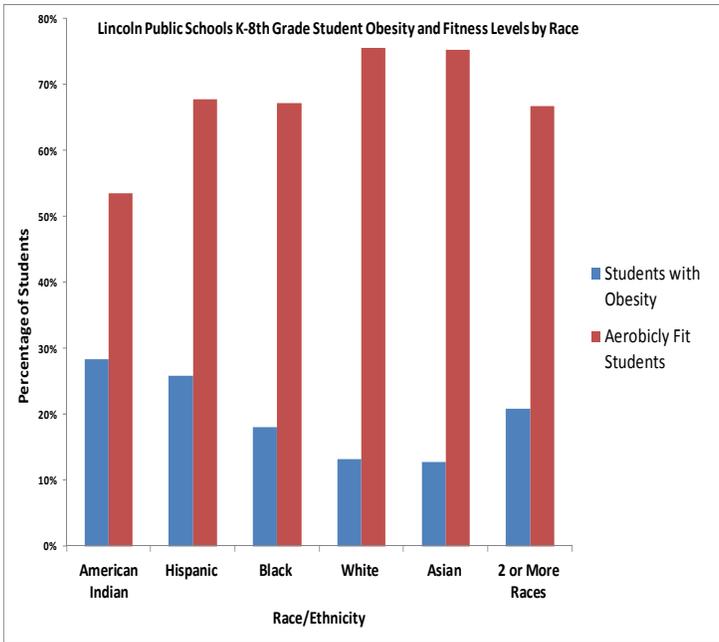
Table 1.	Nebraska	U.S.	Trend/Benchmark	Disparities
Percentage of youth (10-17 years) who are overweight or obese*	28.9%	31.3%	No change	NE data not available; Figure 1 shows disparities in Lincoln Public Schools; National Data shows racial/ethnic disparities in % of obesity in children (Black = 20.2%, Latino = 22.4%; White = 14.3%)
Percentage of low- income children age 2 – 4 years who are obese ^{xv}	13.8%	14.4%	No change	
Prevalence of Households with Food Insecurity ^{xvi}	13.8%	14.6%	Increasing Trend; HP2020 Benchmark = 6%	Disproportionate representation of SNAP participants across racial/ethnic groups ^{xvii}
% of Nebraska children (6-11) who do not engage in vigorous physical activity every day ^{xviii}	60.1%	64.4%	No change	White = 69.3% Hispanic = 78.6% Black = unavailable
% of Nebraska children (17 and under) living in poverty ^{xix}	17.7%	19.9%	16% increase from 2009 to 2013	White – 10% Black = 44.9% American Indian = 42.2% Hispanic = 31.9%

* Statewide data for ages 1 – 9 are not readily available

Behavioral risk factors contributing to overweight and obesity have increasing trends nationally. Data show decreasing trends of physical activity in schools due to budget and academic pressures^{xx} and currently less than 4% of elementary schools provide daily physical education.^{xxi} In addition, many preschool-age children enrolled in child care are not meeting recommendation for amount of time allocated for physical activity.^{xxii} Sugar-sweetened beverage consumption has increased by nearly 500% in the past 50 years and is considered the biggest category of caloric intake.^{xxiii} National data show increasing trends in fruit consumption in children and adolescents but no change in vegetable consumption.^{xxiv} This shows progress from ongoing efforts and supports the need for sustained and enhanced efforts.

Criterion 2: Disparities Exist Related to Health Outcomes

As noted above, state-level data are not available on racial/ethnic disparities. However, national data show substantial disparities and are mirrored by data from some Nebraska localities. Figure 1 shows data from Lincoln Public Schools showing disparities in obesity and aerobic fitness for kindergarten through 8th grade students. Also, while 96% of White children in Nebraska are reported to live in neighborhoods that are usually or always safe, only 70.1% of African-American and 75.7% of Hispanic children report the same level of safety. This is important because real and perceived safety are key indicators of access to physical activity opportunities.



Criterion 3: Strategies Exist to Address the Problem/An Effective Intervention is Available

For obesity prevention the Centers for Disease Control and Prevention (CDC) recommends evidence-based strategies to:

1. promote the availability of affordable healthy food and beverages,
2. support healthy food and beverage choices,
3. encourage breastfeeding,
4. encourage physical activity or limit sedentary activity among children and youth,
5. create safe communities that support physical activity, and
6. encourage communities to organize for change.

(See example of local efforts to address these strategies in Criterion 4)

In addition to disparities across race/ethnic groups, there are known disparities in prevalence of overweight/obesity, food insecurity, access to healthy foods and physical activity levels across income levels, educational attainment, and place of residence. In Nebraska the proportion of children of color in poverty is increasing (33.2% in 2008-2012 compared to 27% in 2000).^{xxv} According to a Census Bureau survey, those at greatest risk of being food insecure live in households that are: headed by a single woman; Hispanic or Black; or with incomes below the poverty line. In Douglas County, 46.1% of children from low-income families were obese/overweight compared to 24.5% of children from high-income families.^{xxvi} Differences in percent of children engaging in daily moderate/vigorous physical activity across income levels were also observed in Douglas County (38.9% in low-income children vs. 49.5% in mid/high income children). National data show that 1 out of 6 children living in rural areas are obese compared to 1 out of 7 children in urban areas.^{xxvii}

The CDC also notes that for maximum population impact, the focus should be on effective strategies that alter the food and physical activity environments in places where persons live, learn, work, play, and pray. Interventions aimed at single behavioral targets are unlikely to have a substantial impact, and both evidence-based practice and practice-based evidence should be considered.^{xxviii} Importantly, many of these same strategies can positively impact a child’s food security including increasing participation in school breakfast and summer meals, and increasing access to healthy affordable foods within neighborhoods. Many national standards and evidence-based interventions exist such as “Preventing Childhood Obesity in Early Care and Education Programs”^{xxix}, Alliance for a Healthier Generation’s Healthy Schools Program^{xxx}, and the American Academy of Pediatrics Evidence-Based Recommendations for Obesity Screening.^{xxxi}

Examples of Recommended Evidence-Based Strategies:^{xxxii,xxxiii}

- Assess the retail food environment to better understand the current landscape and

differences in accessibility to healthier foods.

- Provide incentives for supermarkets, farmers markets, or other retail models to establish their businesses in underserved areas or to sell and promote healthier foods.
- Expand programs that bring local fruits and vegetables to schools.
- Put salad bars in schools.
- Help early child care and early education facilities support optimal nutrition, breastfeeding, physical activity and screen time standards and practices.
- Enroll elementary, middle, and high schools in USDA's Team Nutrition program and apply for certification through the Healthier US School Challenge.
- Increase access to drinking water and other healthier beverages in early care and education facilities.
- Increase access to free drinking water and limit the sale of drinks with added sugars in schools by establishing school wellness and nutrition policies.
- Support breastfeeding in hospitals and the workplace.
- Create and maintain safe neighborhoods for physical activity and improve access to parks and playgrounds.
- Increase participation in school breakfast and summer meals.

Criterion 4: Societal Capacity to Address the Problem

Across the State, various coalitions, partnerships, and agencies are actively working within their localities and state-wide to address the issues of overweight/obesity, physical inactivity, and food insecurity. Importantly, these efforts are supported by the infrastructure provided by Nebraska DHHS whose mission is "Helping people live better lives." To fulfill its mission, NE DHHS has created a broad scheme of resources, including partnership with other organizations, communities, and individuals across the State to provide the support and resources that are needed to prevent and treat obesity and reduce food insecurity. Efforts are addressing these issues at multiple levels and across

several environments including early education, school, primary care, and within neighborhoods. This breadth of support indicates a high-level of capacity and dedication to address these issues and supports the need for ongoing support to continue and sustain successful, evidence-based interventions.

Examples of current efforts include but are not limited to the following efforts:

- **School-Based Efforts to Improve Nutrition and Physical Activity (Strategies 1, 2, and 4 above)**
 - Coordinated School Health Institute – Nebraska Department of Education
 - Fuel Up to Play 60 - Midwest Dairy Council
 - Health Teacher and Go Noodle – Children’s Hospital
 - NE Brain Blasters – UNO
 - Nebraska Action for Healthy Kids
 - Partners for Healthy Schools –Omaha, NE
 - PEP grant and Buffalo County Community Partners – Kearney, NE
 - Team Nutrition School Wellness Policy Training/Smarter Lunchroom Trainings - Nebraska Department of Education
 - UNL Extension SNAP-Ed
 - Whole Child Project
- **Improving Food Security/Access to Healthy Foods (Strategies 1, 2, and 6)**
 - Food Bank for the Heartland; Food Bank of Lincoln
 - Hunger Free Heartland
 - Midwest Dairy Council
 - Legislative action to expand SNAP eligibility
 - Backpack program
 - Summer feeding programs
 - School/community gardens/Aquaponics
 - Farm-to-School
 - Farmers Markets
 - Snack-N-Go
 - Healthy Neighborhood Stores
- **Primary Care Interventions (Strategies 2 and 4)**
 - HEROES
 - Healthy Families (Kearney, CHI Health)
 - Body Works

- **Early Childhood Efforts to Improve Nutrition and Physical Activity (Strategies 1, 2, 3 and 4)**
 - NAPSACC
 - Gretchen Swanson Center for Human Nutrition – Teach Kids About Nutrition
- **Improving Access to safe places for physical activity (Strategies 5 and 6)**
 - Complete Streets Policy/Development
 - Lincoln, Bellevue, Hastings
 - Parks and Recreation Departments Master Plans (for park improvement)

Criterion 5: Severity of Consequences Criterion

The negative consequences of childhood obesity are numerous. Obese children are at an increased chance of having risk factors for cardiovascular disease such as high blood pressure and high cholesterol.^{xxxiv} In fact, one study found that 70% of children who were obese had at least one cardiovascular disease risk factor.^{xxxv} Furthermore, obese children are more likely to have type 2 diabetes, asthma, joint problems, and psychosocial issues (e.g., low self-esteem, negative body image, and depression).^{xxxvi} Unfortunately, adverse health implications due to childhood obesity have been detected as early as age 5.^{xxxvii} Due in part to the physical and psychological factors associated with childhood obesity, obese children report a lower health-related quality of life.^{xxxviii} These health implications are not easily treated and may continue throughout the child’s life as obese children are twice as likely to become obese adults.^{xxxix, xl}

In the short-term, obesity, hunger, and physical inactivity can impact a child’s success in school. Obese children miss an average of 9 more school days per year than their healthy weight counterparts. This not only impacts their academic achievement but could cost Nebraska schools an approximate \$5.8 million dollars per year due to absences.^{xli} Physically inactive children and children who did not eat breakfast (and indicator of food insecurity) have been shown to perform worse on tests compared to their peers.^{xlii} These disparities in

academic achievement may persist throughout life as obese adults are less likely to obtain a higher education and have lower incomes, especially women, than their normal weight peers.^{xliii, xliv}

The gravity of childhood obesity can also be seen by increases in medical costs and use of mental health resources.^{xlv} Recent estimates suggest that childhood obesity costs \$19,000 per child when compared to a normal weight peer.^{xlvi} Given recent estimates of childhood obesity the costs could reach approximately \$14 billion. All costs of childhood obesity though cannot be measured as childhood obesity may also lead to premature death.^{xlvii} It is evident that efforts are needed to reduce the severity of consequences and prevent childhood obesity and the related risk factors.

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