

# The problem of obesity among high school students in Michigan State House District 101



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Policy Proposal  
March 29, 2019

## Abstract

Obesity puts students' well-being at risk and compromises the physical health of the future workforce. Research connects obesity to chronic diseases including diabetes and cardiovascular disease. Unhealthy school food environments negatively affect the dietary habits of students. This paper addresses the magnitude of the problem in Michigan State House District 101 and policies regarding improvements to school food environments.

### The Problem

The obesity rate for high school students in Michigan is higher than that of most other states [1]. As shown in Figure 1, Michigan State House District 101 (District 101) is no different. Obesity rates among Michigan high school students are the ninth highest in the United States, and 16.9% of high schoolers in District 101 are considered obese [1, 2]. Obesity is defined as an atypical increase in body fat associated with chronic diseases including diabetes and cardiovascular disease [3]. Obesity puts students' well-being at risk and compromises the physical health of the future workforce [3, 4].

Issues that contribute to this problem include:

- The absence of home economics education prevents District 101 high school students from learning what constitutes as healthy food [6].
- Physical education (PE) requirements in Michigan are not adequately enforced [7] and are insufficient in reducing rates of obesity among District 101 students.
- Unhealthy school food environments negatively affect the dietary habits of students [8]. School food environments are determined by the available food options, and how and where those options are presented [8-10].

### Magnitude

Regardless of their career path, the 5,000 high school students in District 101 are likely to join the workforce

and gain financial independence [11]. Obesity is linked to chronic disease and elevates personal health care costs by an average of \$219 per year [4]. Employers and other third-party payers incur obesity-related healthcare expenses of approximately \$3,210 for each obese employee per year [4].

### Main Issue to Address

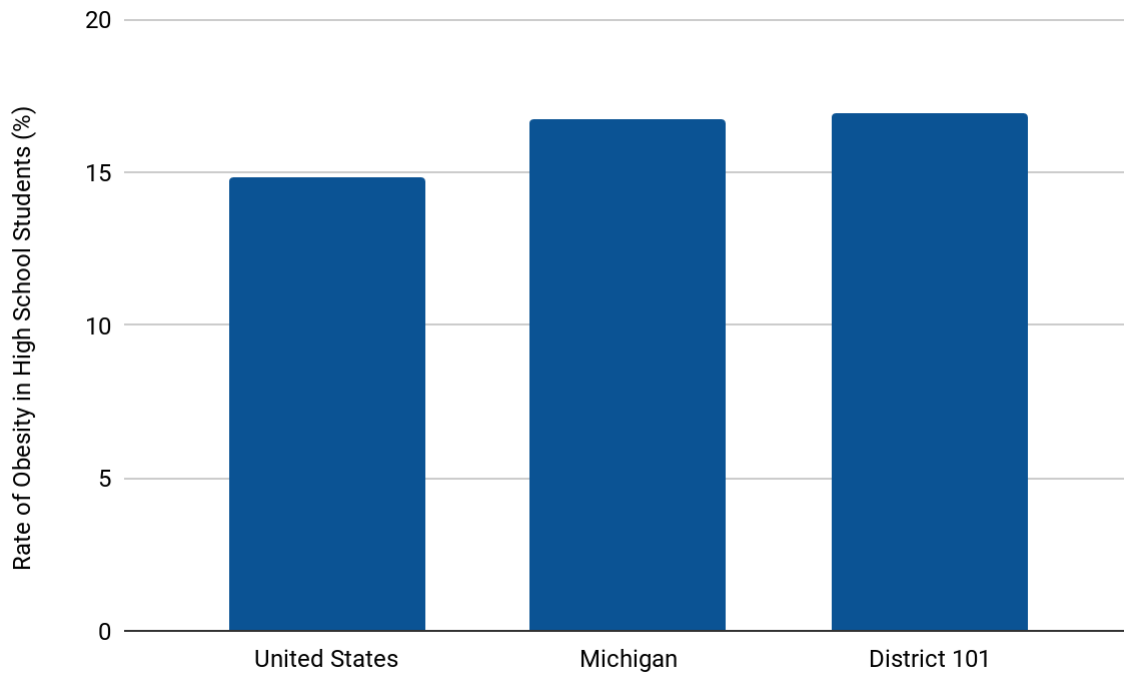
The food environment in District 101 high schools must be addressed. With improved school food environments, students will have better opportunities to make healthy choices.

### Policy Question

How can District 101 modify high school food environments to reduce student obesity rates?

### Problem Trajectory

There is no enforcement of Michigan PE policies [7]. An average of 52.6% of high school students in District 101 attended PE classes on one or more days a week during the 2017-18 school year [2]. This does not meet the sixty minutes of daily exercise recommended for this population [7]. Current PE policies cannot effectively reduce obesity rates among District 101 high school students.



**Figure 1:** *High obesity rate in District 101 high school students.* Created by author using data from: Youth Risk Behavior Surveillance System, Center for Disease Control [5]; The State of Obesity in Michigan, The State of Obesity [1]; Michigan School Health Survey System, Michigan Profile for Healthy Youth (MiPHY) [2]. Note: MiPHY data excludes Benzie County and includes Lake County.

Vending machine sales provide revenue to a school’s food service providers [12]. While food served in the lunchroom must meet federal nutritional standards, vending machines found in high school environments are less regulated [10]. Vending machines offer more appealing, but less healthy options to students [10]. Their presence increases students’ risk of obesity [10].

School lunch is a central part of the school food environment [9], and the way it’s presented can have great influence on students’ selections in the cafeteria.<sup>8</sup> Even when options are perceived as unhealthy, students still choose them because they are more attractive and predictable than choices perceived as healthy [8]. A poor school food environment perpetuates these social norms and contributes to obesity among high school students [8].

### Previous Policy

In 2016, the United States Department of Agriculture (USDA) set nutritional standards for competitive foods sold outside the cafeteria, including in vending machines

[13]. This reduced student exposure and access to unhealthy food options [10]. However, the Michigan Department of Education (MDE) allows exemptions for food sold through fundraisers [13]. This compromises a healthy school food environment as these foods may be more appealing [8-10, 14]. Inadequate competitive food policies will not reduce obesity rates in District 101 high school students [9, 10].

### Pressure for Action

There is a skilled labor shortage in Michigan [15] and state policy should promote the health of the current and future workforce to ensure their productivity. Some District 101 high school students will eventually join this skilled labor force, so the health barriers they face warrant attention. Students in District 101 currently experience school food environments that inhibit their ability to prevent obesity. We must act to improve their health—the state’s future workforce depends on it.

## Policy Options

Improvements to school food environments in District 101 can reduce obesity among high school students [16]. The school food environment is determined by the type of food available, how and where these options are presented to students, as well as schoolwide knowledge of and attitudes toward healthy foods [9]. High school students eat nearly half of their daily calories at school [9]. A poor school food environment makes it more difficult for students to choose healthy options and contributes to the high rate of obesity in high school students [8, 9]. Research demonstrates that school-based interventions can positively influence consumption of healthy foods and reduce student weight [16, 17].

### **Policy Option A: Require Michigan Department of Education to integrate food and nutrition education into high school**

Food and nutrition education can be integrated into existing subject matter at the high school level to improve the school food environment [18]. Examples of curriculum integration include preparing a recipe for a math lesson, recording scientific observations in the garden for a science lesson, or tasting different apple varieties for a creative writing lesson.

#### *Effectiveness*

Food and nutrition education build the knowledge needed to make healthy food choices and allow students to better understand how those food choices impact overall health [19]. This approach can increase student consumption of fruits and vegetables in the lunchroom [20]. Improved fruit and vegetable intake are associated with a more stable body weight and a lowered risk of developing chronic diseases associated with obesity [10].

Research shows that nutrition education, provided by the federal Supplemental Nutrition Assistance Program (SNAP), leads to healthier individual food choices among adults [21]. This information suggests that statewide nutrition and food education programming could be similarly effective in high schools. However, evidence indicates that food and nutrition education alone are not sufficient in reducing obesity rates and should be paired with additional interventions for improved effectiveness [19].

#### *Political feasibility*

Republican support for this approach may be limited as it increases government regulations for public schools and requires increased public funding. Considering the statewide skilled labor shortage [15], this policy option may be an effective means to narrow the divide between Republicans and Democrats in Michigan in order to support the health of the future workforce. Existing public support for cooking education as an obesity prevention strategy in schools suggests that bipartisan support of this solution is possible [6].

#### *Financial and administrative feasibility*

Education-based interventions to reduce obesity rates can provide economic benefit to the state due to improved health of the labor force. Research suggests that nutrition education is cost-effective but expensive [22]. Integrating nutrition themes into the science curriculum of 3,000 New York City classrooms cost more than \$8.5 million, excluding curriculum development [22]. One year after implementation, the study projected reduced rates of obesity for participants and savings of near \$8 million in their lifetime medical costs [22]. In District 101, a similar initiative would cost about \$550,000 and could avoid roughly \$530,000 of future obesity-related medical expenses [11, 22].

Integrating food and nutrition themes into pre-existing curricula is more practical than finding additional time during the school day for a home economics class period [18]. This integration project would require a team of food and nutrition curriculum specialists. After approval of the updated curriculum, implementation would fall to teachers across Michigan. The new curriculum will likely require additional professional development, materials, and preparation time [23].

#### *Ethical feasibility*

Tax increases associated with this approach could infringe on individual rights, especially for those Michigan residents with no children in public high schools. However, this solution can lead to improved and more equitable health outcomes for public high school students. Most high school students learn how to cook from family members, cookbooks, or teach themselves

[5]. With the introduction of food and nutrition education in public schools, this learning could be standardized and made accessible to all students.

### **Policy Option B: Mandate statewide implementation of smarter lunchrooms in high schools**

Improving high school food environments is possible through the Smarter Lunchrooms Movement (SLM). This national organization provides free or low-cost strategies to school food service providers to create lunchroom environments that encourage students to select the healthiest food options available [24]. For example, offering sliced apples at multiple points in the lunch line increases the likelihood that students will select them because they are more convenient and available as opposed to whole apples being offered in just one location.

#### *Effectiveness*

Implementation of SLM strategies makes healthy choices more convenient, appealing, and acceptable [24, 25]. This approach increases the likelihood that students will select and eat more fruits and vegetables [25]. One study observed that fruit consumption increased by 18% and vegetable consumption increased by 25% in a high school lunchroom in New York after SLM strategies were implemented [25]. Increased consumption of fruits and vegetables lowers the risk of obesity and other chronic diseases [10].

#### *Political feasibility*

This solution will support the health of Michigan's future workforce and help address the current labor shortage issue, so bipartisan support is possible. With this being said, this approach would also create more government regulations for school food service providers, which may hinder support from Republicans. Furthermore, the USDA announced its support for SLM in 2014 and released grant funding to encourage its implementation in schools [26]. Federal endorsement for SLM may encourage bipartisan support for this policy option.

#### *Financial and administrative feasibility*

Requiring SLM implementation presents minimal financial expense. SLM resources are free or low-cost, so school food service providers can hand-pick strategies based on their budgets. While introduction of SLM strategies will increase administrative responsibilities for food service providers, Michigan State University (MSU)-Extension offers consultation services to schools that implement SLM [27]. MSU-Extension can also help SLM schools identify grant opportunities to fund the purchase of posters, display bowls, salad bars, and other resources [28].

#### *Ethical feasibility*

Instead of restricting food choices, SLM strategies help food service providers design lunchrooms and food service lines that make it easier to choose healthy options [24,25]. Still, this approach raises minor concerns of limited student autonomy. Improvements to the school food environment through SLM benefit all students whether or not they eat food from school [24].

### **Policy Recommendation**

Michigan should mandate statewide implementation of SLM strategies in public high schools. SLM implementation can more affordably reduce the high rate of obesity among Michigan high school students. This approach is less dependent on state education funding should budgets be cut. This approach is affordable, evidence-based, and has demonstrated positive results in other states [10].

The health of high school students is vital to the development of a more robust skilled labor force. Obesity threatens the health of this population and causes elevated healthcare costs [4]. Through improvements to the lunchroom environment, high schoolers in Michigan will be able to make healthier choices [10]. SLM strategies must be implemented in Michigan high schools to reduce the high obesity rate among high school students and ensure the health of the state's future workforce.

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