

## Characteristics of High-Risk Groups: Analysis of Norwalk Student Body Mass Index (BMI) Data

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### Background

One in three children in the United States is currently classified as overweight or obese, and this prevalence increases as age rises.<sup>1</sup> Obesity varies by racial, environmental, ethnic, genetic, and socioeconomic factors.<sup>1</sup> Childhood obesity is more prevalent among African Americans, American Indians, and Mexican-Americans than in Whites, as well as in lower income families.<sup>1 2 3</sup> Connecticut has one of the lowest obesity rates of children ages 10-17 in the nation (~11.9%).<sup>4</sup> Norwalk's childhood obesity rate, assessed through school BMI data at kindergarten, 3<sup>rd</sup>, 6<sup>th</sup> and 9<sup>th</sup> grade, is well above this mark at 22%<sup>5</sup>. This project reflects a partnership between the Norwalk Health Department and Norwalk Public Schools to create a report on childhood obesity in Norwalk schools stratified by age, gender, race, and free and reduced-price lunch eligibility.

### Objectives

- 1) Identify areas for improvement that could be addressed by the Norwalk Health Department and/or the Norwalk Public School System.
- 2) Analyze BMI data to determine if disparities in obesity prevalence in Norwalk Public Schools exist by demographic characteristics and understand how trends in obesity prevalence have changed over time.

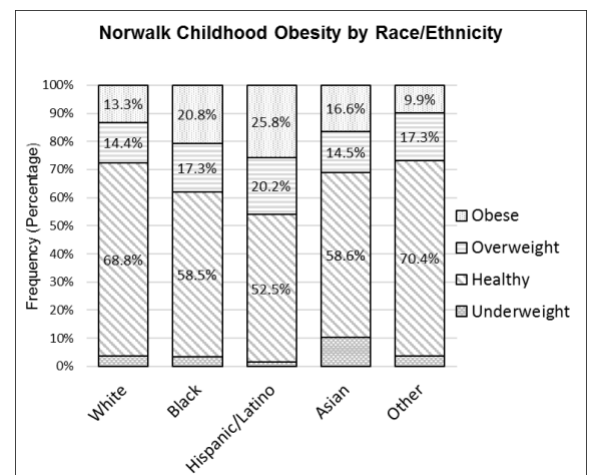
### Methods

#### Qualitative Data:

- 30-minute semi-structured key-informant interviews (n=10) were conducted to inform prevention efforts and next steps for the Norwalk Health Department and Norwalk Public Schools.
  - Questions focused on food systems, walkability, school menus, opportunities of physical activity and other key social and environmental factors that have the potential to affect obesity and overweight prevalence.

#### Quantitative Data:

- De-identified school health record data for children in kindergarten, third, sixth, and ninth grade from the school years between 2013-2018 (n=14,880) were analyzed to identify vulnerable populations for obesity or overweight status in the Norwalk Public School System.
  - Chi-squared analyses were performed to analyze the relationship between race/ethnicity, free or reduced-price lunch eligibility, gender, school, and grade level and obesity or overweight status both for the 2017-2018 school year (n=2,709) and the aggregate dataset from 2013-2018.
  - Obesity and overweight prevalence by race/ethnicity was compared to state and national averages.



### Results

#### Qualitative Results:

- Current policies and grant funding in the state of Connecticut heavily influence food options and opportunities for physical activity within the school system.
- Common challenges include lack of infrastructure for physical activity in the school setting, variable student engagement in recess and physical activity offerings, and the influence of culture on health behaviors.
- There is a need for better integration with existing community resources that are also working to address childhood obesity.
- Stakeholders acknowledged the challenges of addressing these issues in the school environment and highlighted the need to engage parents in these efforts.
- Respondents expressed the opinion that successful programming generally included active support from the school administration, grant money and was often spearheaded by school nurses.
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### Quantitative Results:

- Obesity and overweight prevalence are significantly higher among minority children and those on free and reduced-price lunch throughout all grades, with the highest disparities observed among sixth graders.
- Obesity and overweight prevalence in Norwalk Public Schools are higher than both Connecticut state averages and national averages, particularly among minority students.
- Obesity prevalence significantly increases between kindergarten and third grade, and significant differences in prevalence observed across elementary schools.

Prevalence of Obesity	White	Black or African American	Hispanic or Latino of any race	Asian	Total
<b>Norwalk High Schools</b>	(n=792)	(n=400)	(n=1291)	(n=145)	(n=2710)
Female	6 (6.7%)	19 (30.2%)	17 (12.6%)	2 (13.3%)	44 (14.2%)**
Male	24 (23.8%)	8 (15.4%)	33 (26.4%)	6 (27.3%)	73 (23.9%)
Overall	30 (15.7%)	27 (23.5%)	50 (19.2%)	8 (21.6%)	117 (19.0%)
Overweight and Obese	58 (30.4%)	44 (38.3%)	106 (40.8%)	16 (43.2%)	266 (36.8%)**
<b>Connecticut, 2018</b>					
Female	N/A	N/A	N/A	N/A	10.6%
Male	N/A	N/A	N/A	N/A	14.6%
Overall	9.5%	17.3%	17.1%	4.8%	14.8%
Overweight and Obese	23.5%	37.2%	37.2%	24.6%	28.7%
<b>United States, 2017</b>					
Female	10.3%	16.7%	14.0%	N/A	12.1%
Male	14.5%	19.7%	22.2%	N/A	17.5%
Overall	N/A	N/A	N/A	N/A	14.8%

\*\* Indicates values that are statistically significant, at the  $p < 0.05$  level

### Recommendations

- Focus on increasing access to healthier school food options through the utilization of existing school-based programs.
- Target future school interventions toward groups at greater risk, including minority students and those on free and reduced-price lunch.
- Conduct further research into policy differences among elementary schools, and other factors that impact the increase in obesity rates associated with the school environment.
- Create a community asset map to improve resource coordination and better utilization of existing resources among Norwalk organizations focusing on wellness.
- Focus existing programs on improving awareness and engagement among parents and students in Norwalk, possibly through online platforms (i.e. Facebook) or PTA meetings.

### Limitations

- BMI is not the best metric for measuring health risk, but the definition of obesity is strictly related to BMI, so the results of this project reflect BMI as an indicator of obesity. There are other measurements that more appropriately address health risks associated with body size.
- Parents and students could not be interviewed, limited information on influences outside of school.

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