

The Status of Childhood Weight in Massachusetts, 2009

Preliminary Results from Body Mass Index Screening in
80 Essential School Health Districts, 2008-2009

ESSENTIAL SCHOOL HEALTH SERVICES PROGRAM
SCHOOL HEALTH UNIT
BUREAU OF COMMUNITY HEALTH ACCESS AND PROMOTION
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH



September 2010

Massachusetts Department of Public Health

**Essential School Health Program
School Health Unit
Bureau of Community Health Access and Promotion**

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Highlights

- Of the 109,674 public school students in grades 1,4, 7 and 10 who were screened in 2008-2009, 63.2% were in the healthy weight category, 16.9% were overweight, and 17.3% were obese. Thus, 34.3% of students were either overweight or obese. Of the male students, 35.9% were overweight or obese compared to 32.5% of the female students screened. More males fell into the obese or overweight category for each grade.
- There was substantial variation among the 80 Essential School Health Services (ESHS) Districts in the proportion of their students who were overweight or obese, ranging from 9.6% in Arlington to 46.6% in Lawrence.
- Similarly, there was also substantial variation among the ESHS Districts in the proportion of their students in the healthy weight category for each of the 4 grades. For example, the percentage of 4th grade male students in the healthy weight category ranged from 40.2% to 82.1%, with an average of 57.7%.
- There was substantial variation by grade and gender in the percentage of students who were in the obese category. The lowest percentage of obesity was among 10th grade females at 11.9 % compared to 16.0 % of 10th grade males. The highest percentage of obesity was among 4th grade males at 21.6% compared to 18.0% for 4th grade females.
- There were no major differences by gender or grade in the percentage of students who fell into the overweight category.
- The percentage of students who were either overweight or obese did not differ substantially by grade: for grade 1, 31.9% fell into these two categories, compared to 37.6% for grade 4, 35.6% for grade 7 and 30.5% for grade 10.
- The overall percentage of students who fell into the underweight category was low, 2.5 %, and did not vary as dramatically among the 80 ESHS districts. The range of percentage of underweight students varied from 1 % to 5.5%.

Introduction

To address the significant public health problem of obesity, the Massachusetts Department of Public Health (DPH) launched its statewide Mass in Motion initiative in January 2009. Mass in Motion aims to promote wellness and to prevent overweight and obesity in Massachusetts – with a particular focus on the importance of healthy eating and physical activity. Mass in Motion uses a multi-faceted approach, including:

- The release of a *Call to Action* that documents the extent of the obesity epidemic in Massachusetts, its consequences, and efforts to combat it;
- Support for regulatory changes to promote healthy diet and exercise, including Body Mass Index (BMI) screening of public school students in grades 1, 4, 7 and 10, and menu labeling for chain restaurants operating in Massachusetts.
- An Executive Order by Governor Patrick requiring state agencies responsible for large-scale food purchasing (e.g., DPH and DMH hospitals) to follow healthy nutritional guidelines in their food service operations. State purchases of food by these agencies run into the tens of millions of dollars per year;
- Municipal Wellness grants to cities and towns to make wellness initiatives a priority at the community level. Funding for these grants comes from five major health-funding foundations and other leading health organizations in the Commonwealth;
- The expansion of a state-sponsored Workplace Wellness program to help employers create work environments that encourage healthy behaviors and reduce absenteeism and health insurance costs;
- The launch of a state-sponsored Mass in Motion web site that promotes eating better and moving more at home, work, and in the community. The objective of the website is to provide simple, practical, cost-effective ways for Massachusetts residents to:
 - Improve eating habits
 - Increase physical activity
 - Ask experts questions about improving their diet and physical exercise routine
 - Get involved in helping to build healthy communities

Essential School Health Services

The Department of Public Health's School Health Unit's mission is the promotion of quality school health services across the Commonwealth through consultation, regulation development, continuing education, and performance improvement initiatives.

The Essential School Health Service (ESHS) Programs were developed in 1993, expanded in 1999-2000 to (a) strengthen the administrative infrastructure of the school health service program (nursing leadership, staffing requirements, health assessments, policies, emergency care, etc.), (b) implement tobacco control and cessation programs, as well as support efforts to prevent substance abuse, (c) link the school health service program with local health agencies, health care providers, community-based activities, and public health insurance programs, and (d) develop management information systems. In 1999-2000 grantees were also required to provide specific health services to community private schools aimed at strengthening the school health services available to private school students. In FY 08, each experienced ESHS program was asked to assume responsibility for mentoring or partnering with two other school districts in order to spread the high quality standards to additional school districts.

Currently, there are 80 Essential School Health Service Programs, serving 108 cities and towns and approximately 471,096 or 50 % of Massachusetts public school students. In addition, there were 120 partner school districts with 276,025 students. A total of 747,121 students are included in the ESHS districts and their partner school districts. In addition, 159 private schools, with an enrollment of 42,116 students also participate. An overall total of 789,237 students are part of the ESHS programs in the Commonwealth.

Body Mass Index Screening of Public School Students

As a key component of the Mass in Motion initiative, in April 2009, the Public Health Council unanimously approved a regulation requiring school systems to measure the height and weight of public school students in grades 1, 4, 7 and 10 and use those figures to calculate their Body Mass Index (BMI). BMI is a method of determining if a child has a healthy weight compared to other children of the same age and sex. Children with a high BMI are more likely to become overweight or obese adults and be at a higher risk for diabetes, heart disease and some cancers. Helping children attain a healthy weight now, and stay at a healthy weight, may prevent serious illness later in life.

School nurses are responsible for oversight of the screening, including: parent notification, providing privacy during screening, training for any ancillary staff assisting with screening, recording and the confidential reporting of individual results to parents, and submitting aggregate data to MDPH.

Parents and guardians are given the opportunity to waive their child's BMI screening at school by submitting a written request. The results of the screening are directly and confidentially communicated to the parents or guardians of each student. In addition, aggregate data is shared with local school and health officials and with the Department of Public Health. No data on an *individual* student is shared with anyone other than that student's parents or guardians. All BMI screening results completed in 2009 and 2010 were mailed home to students, delivered directly to parents, or available through a

secure internet portal to all students, regardless of BMI for age category. Education materials in multiple languages on healthy eating, portion sizes and physical activity was provided for families.

The BMI screening program is being phased in across Massachusetts. School districts that participate in the ESHS program have been collecting this data since 2004. The data contained in this report include the eighty ESHS school districts for the 2008-2009 school year. This is the first time that data is shown at the city and town level for these districts. During the 2009-2010 school year, 120 school districts reported BMI for the 4 grades and these data will be available in 2011. Beginning this year (2010-2011 school year) all public schools in Massachusetts are required to perform BMI screening for all students in grades 1, 4, 7, 10 (or corresponding age in ungraded schools).

BMI Data Collected in 2008-2009 School Year

The data in this report represents data from 80 school districts in the Essential School Health Services program collected during the 2008-2009 school year on 109,674 students. This sample represents 38% of the 287,107 public school students in all Massachusetts schools in grades 1, 4, 7, and 10.

| Category of Enrollment for 2008-2009 School Year | Number of Students | Percent of MA Enrollment in Grades 1, 4, 7, 10 |
|--|---------------------------|---|
| Massachusetts public school enrollment, grades 1,4,7,10 | 287,107 | 100 % |
| Essential School Health Services enrollment in all 80 districts, grades 1,4,7,10 | 142,537 | 50 % |
| Students screened in ESHS districts, grades 1,4,7,10 | 109,674 | 38 % |

Potential Uses of the Data

The goal of this report is to share this data widely with all community leaders so it can be used for sound community planning, program development and public health monitoring. In addition to providing useful information to individual students, their parents and their health care providers, the aggregated BMI screening data can be useful to many other stakeholders in each local community. The aggregate BMI data is an important indicator of the health of the current school-age population and is related to the health of future adults in that community. These data reflect patterns of healthy nutrition and physical activity which are aspects of a healthy, productive and economically vital community. The Department of Public Health is releasing this report to facilitate school nurses sharing the aggregated school district data with:

- School superintendents, principals and other administrators who make important policy decisions that influence the school environment;
- School committees and school wellness committees;
- Health educators, food service personnel, athletic directors, teachers and others who may impact healthy nutrition and physical activity within the school setting;
- Local boards of health;
- Parent teacher associations and site-based councils of parents;
- Municipal leadership, including mayors, town managers and city or town councils;
- Local primary care providers, community health centers, hospitals and other health care institutions;
- Local and regional health coalitions; and
- Local and regional municipal planners.

In addition, school nurses are encouraged to work with school administrators, school wellness committees, local boards of health and local planners to consider the appropriate sharing of aggregated data, at the school level, to promote individual school action plans. For example, a school may develop a school wellness policy that includes changes to the school's nutrition and physical activity policy, and promotes a walk to school plan facilitated by local planners, among other initiatives.

In addition, some school nurse leaders may choose to share the community's cardiac and stroke mortality and morbidity data along with the BMI screening data to enhance the connection of this BMI data with future health care costs for the community, including health insurance costs for future municipal employees.

Methodology

Definition of Body Mass Index

BMI is a tool that can be useful in early identification of possible health risk factors among children and youth. Body Mass Index (BMI) (weight divided by height squared) is used to judge whether an individual's weight is appropriate for their height. Body Mass Index (BMI) calculation in children considers gender, age, height and weight. All of this information must be recorded accurately to determine BMI.

BMI is a health *screening* tool and not a diagnostic tool. It is used to screen for obesity, overweight, healthy weight, or underweight and is only one of the data points used in a complete health assessment. Many other factors can influence a child's BMI, such as family history and muscularity. The BMI measure is plotted on BMI growth charts to reveal the child's percentile ranking, which indicates the relative position of the child's BMI among children of the same age and sex. The BMI-for-age percentile is used to interpret the BMI result because BMI is both age-and sex-specific for children and

teens. These criteria are different from those used to interpret BMI for adults — which do not take into account age or sex. Age and sex are considered for children and teens for two reasons:

- The amount of body fat changes with age. (BMI for children and teens is often referred to as *BMI-for-age*.)
- The amount of body fat differs between girls and boys.

For example, a child may have a high BMI for age and sex, but to determine if this indicates a health problem, a health care provider would need to perform further assessments. These assessments might include skinfold thickness measurements, evaluations of diet, physical activity, family history, and other appropriate health screenings.

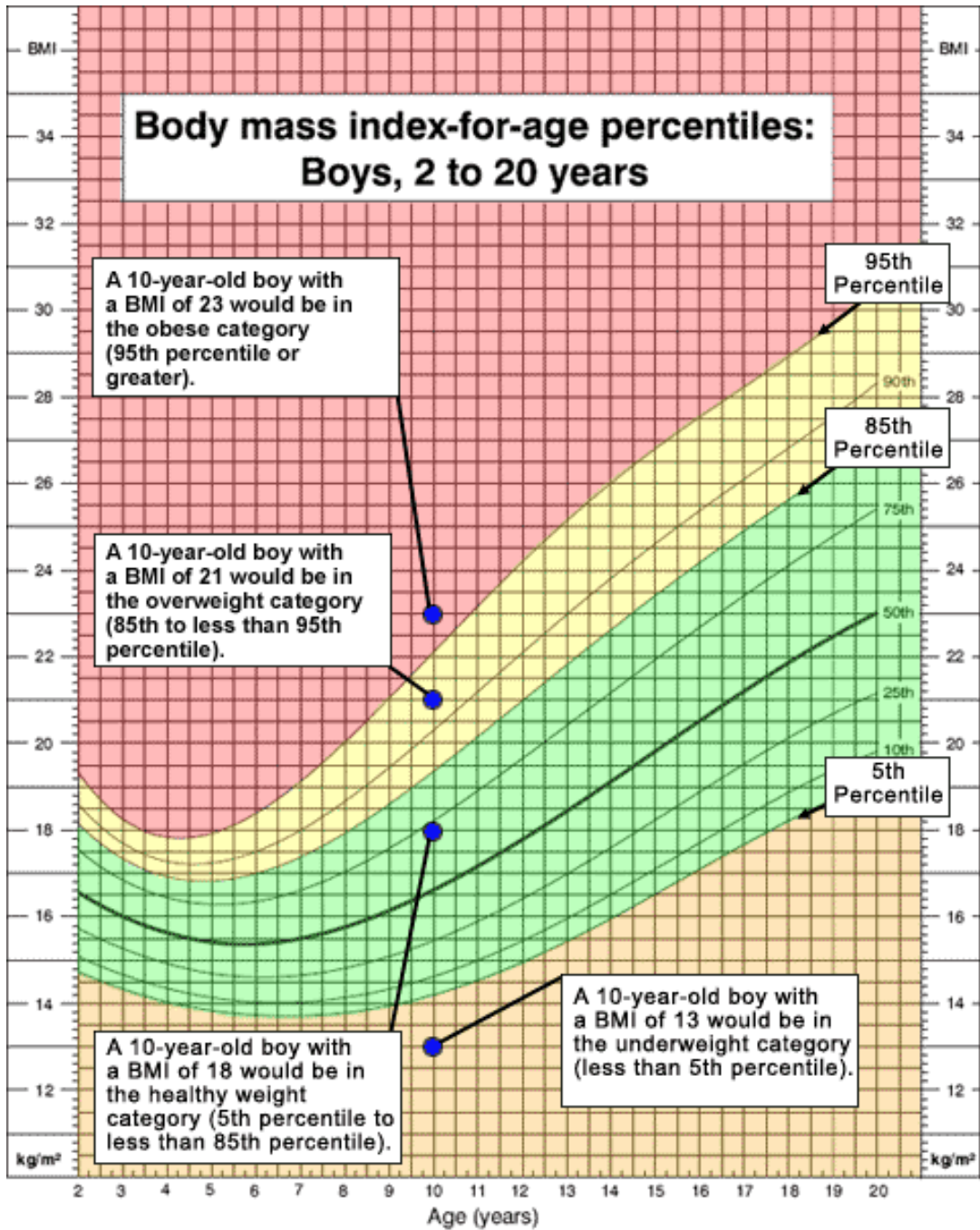
BMI Screening Weight Categories

When the child's BMI percentile for age is less than the 5th percentile, the child is considered *underweight*. When the child's BMI for age percentile is between the 5th percentile and 85th percentile, that is considered a *healthy weight*. BMI for age percentiles greater than or equal to the 85th percentile but less than the 95th percentile are considered *overweight*. When a child's BMI for age percentile is equal to or greater than the 95th percentile, the child is considered *obese*. BMI-for-age weight status categories and the corresponding percentiles are shown in the following table:

| Weight Status Category | BMI for Age Percentile Range |
|-------------------------------|---|
| Underweight | Less than the 5th percentile |
| Healthy weight | 5th percentile to less than the 85th percentile |
| Overweight | 85th to less than the 95th percentile |
| Obese | Equal to or greater than the 95th percentile |

Being overweight, obese or underweight can put a person at risk for certain health problems. A student who is overweight or obese has an increased risk of developing serious conditions, including type 2 diabetes, heart disease, high blood pressure, and orthopedic problems. A student who is underweight has an increased risk for heart problems, loss of bone mass and anemia. Underweight may also be a sign of an underlying eating or endocrine disorder.

See the following example of how some sample BMI results would be interpreted for a 10-year-old boy, based on the BMI for age percentiles.



Limitations

This report contains the first analysis of BMI data at the city and town level. As cities or towns are shown to have higher or lower percentages than expected, MDPH is researching those differences to determine if they are real differences or reporting errors. These data were collected during a single school year, 2008-2009, so it is not possible to assess for trends. In addition, for some smaller towns, the data presented represent relatively small numbers of students and therefore, should be interpreted with caution. The accuracy of the BMI percentiles submitted to DPH depends on the accuracy of height and weight measurements and on use of proper procedures for calculating BMI percentiles from measured height and weight values.

Measurements were taken in 4 grade levels and not from the entire student enrollment. Students in ESHS districts are not necessarily representative of the all public school students in the Commonwealth. Therefore, the data in this report may not be generalizable to all Massachusetts public school students. However, it does provide information about the weight status, including overweight and obesity for more than 100,000 public school students in the 4 grade levels or more than one-third of the public school enrollment in these grades in Massachusetts.

Training of School Nurses

Regional trainings for school nurses have been offered in workshops held by the School Health Institute at Northeastern University and funded by DPH. Alternatively, the training is available online at the School Health Institute website <http://www.cps.neu.edu/shi/index.php>. More than 1500 school nurses received this training.

The training includes:

- Massachusetts General Laws and Regulations on screenings
- Essential elements of Body Mass Index (BMI) screening
- Equipment and tools for proper measurement of height and weight
- Protocols for measuring height and weight
- Measuring Non-Ambulatory Students
- Calculating BMI and Recording Measurements
- Parent Communication, Referral and Follow-up

Data Collection

School nurses perform height and weight measurements and record the information in a computer database containing student health records. A number of computerized health records used by school nurses have a BMI calculator embedded in the software

which reduces the chance of calculation errors. The computerized records also have the child's exact age. When the height and weight is entered, BMI is automatically calculated, including the percentile. In schools where computerized health records are not available, a child BMI calculator on the CDC website may be used.

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_BMI/tool_for_schools.html.

Schools lacking computer access can use a BMI wheel or BMI chart to determine BMI percentile. The BMI percentiles are calculated by each school nurse or by a data analyst employed by the district. This information is then gathered and tabulated into an aggregate district-wide report, and sent to DPH.

In order to ensure the results would be representative of the students in their district, nurses were asked to complete BMI screenings on all students whose parents did not opt out of the screening. For the 2008-2009 school year, in grades 1 and 4, districts reported screening between 55% and 100% of their students, while in grades 7 and 10, the screening rate ranged from 0% to 100%. If a district did not submit BMI screening data for at least 70% of the students in a grade, data for that grade level was not included in this report. School nurses in 76 districts (94% of ESHS districts) met the screening criteria (70% of enrollment) for 1 or more of the designated grade levels. Nurses in 60 districts (75% of ESHS districts) met the screening criteria for all 4 of the designated grade levels. Fewer districts met the screening criteria in grade 10 (60 districts) or grade 7 (69 districts) than in grade 1 (73 districts) or grade 4 (74 districts).

Note on Data Inclusion and Interpretation

Data that did not pass data quality tests or did not meet the reporting criteria described above were excluded from the analysis. In cases where there were a small number of students screened, less than 10, this is noted in the table. The observed rates in these cases should be interpreted cautiously due to the instability of estimates when such small numbers are involved.

Table 1. Overweight or Obese Children in Grades 1, 4, 7, 10 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened (N) | Males | | | Females | | | Males and Females | | |
|----------------------------------|---------------------------------------|-----------------|-----------|--------------------------|-----------------|-----------|--------------------------|-------------------|-----------|--------------------------|
| | | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| ACTON-BOXBOROUGH | 1,666 | 14.3% | 9.9% | 24.2% | 10.8% | 4.8% | 15.6% | 12.5% | 7.4% | 19.9% |
| AMESBURY | 781 | 16.1% | 23.8% | 40.0% | 12.7% | 17.5% | 30.2% | 14.5% | 20.7% | 35.2% |
| ANDOVER | 1,771 | 14.8% | 12.7% | 27.5% | 14.4% | 7.1% | 21.4% | 14.6% | 10.1% | 24.6% |
| ARLINGTON | 1,379 | 5.5% | 6.0% | 11.5% | 4.4% | 3.3% | 7.7% | 4.9% | 4.6% | 9.6% |
| ASHBURNHAM-WESTMINSTER | 705 | 16.9% | 10.2% | 27.1% | 17.7% | 9.3% | 27.0% | 17.3% | 9.8% | 27.1% |
| ATTLEBORO | 825 | 15.1% | 21.8% | 37.0% | 20.2% | 17.8% | 38.0% | 17.5% | 20.0% | 37.5% |
| BARNSTABLE | 1,576 | 20.9% | 20.2% | 41.1% | 18.6% | 16.9% | 35.5% | 19.8% | 18.6% | 38.4% |
| BELCHERTOWN | 816 | 22.3% | 10.7% | 33.0% | 16.8% | 7.9% | 24.8% | 19.6% | 9.3% | 28.9% |
| BERKSHIRE HILLS | 366 | 18.4% | 15.0% | 33.5% | 11.9% | 17.5% | 29.4% | 15.6% | 16.1% | 31.7% |
| BILLERICA [±] | 1,879 | 18.5% | 15.5% | 34.0% | 21.3% | 11.8% | 33.1% | 19.9% | 13.7% | 33.6% |
| BOSTON [±] | 9,841 | 20.4% | 23.7% | 44.1% | 19.5% | 23.5% | 43.0% | 20.0% | 23.6% | 43.6% |
| BRAINTREE | 1,637 | 13.2% | 17.0% | 30.2% | 15.2% | 13.3% | 28.5% | 14.2% | 15.2% | 29.4% |
| BRIDGEWATER RAYNHAM | 1,803 | 16.6% | 21.5% | 38.1% | 13.7% | 11.9% | 25.6% | 15.2% | 16.9% | 32.1% |
| BROCKTON | 4,230 | 16.9% | 22.4% | 39.2% | 19.4% | 21.9% | 41.3% | 18.1% | 22.1% | 40.3% |
| BROOKLINE | 1,685 | 14.8% | 11.2% | 26.0% | 11.5% | 6.0% | 17.4% | 13.1% | 8.5% | 21.7% |
| CAMBRIDGE | 1,236 | 17.1% | 19.0% | 36.1% | 15.0% | 15.4% | 30.4% | 16.1% | 17.2% | 33.3% |
| CANTON | 903 | 18.2% | 14.4% | 32.6% | 12.9% | 9.4% | 22.3% | 15.5% | 11.8% | 27.4% |
| CENTRAL BERKSHIRE | 438 | 19.3% | 15.7% | 35.0% | 15.3% | 16.7% | 32.1% | 17.4% | 16.2% | 33.6% |
| CHICOPEE | 2,139 | 20.6% | 21.5% | 42.1% | 21.0% | 17.4% | 38.4% | 20.8% | 19.6% | 40.3% |

[±] Data for Boston, Billerica, and Marshfield is currently being verified.

| Grades 1, 4, 7, 10 | | Males | | | Females | | | Males and Females | | |
|---|--|------------------------|------------------|---------------------------------|------------------------|------------------|---------------------------------|--------------------------|------------------|---------------------------------|
| Essential School Health District | Total number of students screened (N) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| DOUGLAS | 487 | 17.1% | 17.1% | 34.1% | 11.9% | 8.5% | 20.4% | 14.2% | 12.3% | 26.5% |
| EAST LONGMEADOW | 851 | 20.0% | 17.5% | 37.4% | 14.8% | 14.8% | 29.7% | 17.3% | 16.1% | 33.4% |
| FALL RIVER | 2,957 | 14.6% | 17.4% | 31.9% | 15.8% | 14.0% | 29.7% | 15.2% | 15.7% | 30.8% |
| FITCHBURG | 1,417 | 19.1% | 28.5% | 47.5% | 18.6% | 26.3% | 44.9% | 18.8% | 27.4% | 46.2% |
| GARDNER | 750 | 13.6% | 20.5% | 34.0% | 16.2% | 13.9% | 30.1% | 14.8% | 17.3% | 32.1% |
| GATEWAY | 141 | 18.8% | 18.8% | 37.5% | 19.5% | 14.3% | 33.8% | 19.1% | 16.3% | 35.5% |
| GEORGETOWN | 461 | 18.1% | 10.3% | 28.4% | 22.0% | 7.8% | 29.8% | 20.0% | 9.1% | 29.1% |
| GILL-MONTAGUE | 308 | 15.8% | 19.1% | 34.9% | 17.3% | 21.2% | 38.5% | 16.6% | 20.1% | 36.7% |
| GLOUCESTER | 915 | 14.1% | 19.0% | 33.1% | 14.1% | 16.3% | 30.5% | 14.1% | 17.7% | 31.8% |
| GRANBY | 339 | 22.1% | 21.5% | 43.6% | 16.5% | 17.1% | 33.5% | 19.5% | 19.5% | 38.9% |
| HADLEY | 174 | 22.9% | 15.7% | 38.6% | 16.5% | 14.3% | 30.8% | 19.5% | 14.9% | 34.5% |
| HAMPDEN WILBRAHAM | 1,065 | 18.2% | 15.6% | 33.8% | 18.0% | 8.5% | 26.5% | 18.1% | 12.2% | 30.3% |
| HAMPSHIRE | 406 | 12.8% | 16.7% | 29.4% | 15.0% | 15.5% | 30.5% | 14.0% | 16.0% | 30.0% |
| HARWICH | 376 | 15.0% | 21.5% | 36.5% | 17.6% | 12.5% | 30.1% | 16.2% | 17.3% | 33.5% |
| HAVERHILL | 2,113 | 18.2% | 25.0% | 43.2% | 17.2% | 20.6% | 37.8% | 17.7% | 22.9% | 40.7% |
| HOLYOKE | 1,063 | 18.5% | 27.2% | 45.7% | 23.1% | 21.1% | 44.2% | 20.7% | 24.3% | 45.0% |
| HUDSON | 601 | 14.8% | 21.8% | 36.6% | 16.7% | 17.0% | 33.8% | 15.8% | 19.3% | 35.1% |
| LAWRENCE | 2,564 | 17.1% | 27.9% | 45.0% | 21.2% | 27.1% | 48.3% | 19.1% | 27.5% | 46.6% |
| LEOMINSTER | 1,823 | 15.7% | 29.6% | 45.3% | 16.9% | 21.4% | 38.4% | 16.3% | 25.7% | 42.0% |
| LEXINGTON | 1,862 | 17.1% | 9.5% | 26.6% | 11.1% | 5.8% | 16.9% | 14.0% | 7.6% | 21.6% |

| Grades 1, 4, 7, 10 | | Males | | | Females | | | Males and Females | | |
|---|--|------------------------|------------------|---------------------------------|------------------------|------------------|---------------------------------|--------------------------|------------------|---------------------------------|
| Essential School Health District | Total number of students screened (N) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| LOWELL | 2,995 | 16.5% | 23.8% | 40.3% | 16.9% | 17.9% | 34.7% | 16.7% | 20.9% | 37.6% |
| LUDLOW | 954 | 16.8% | 20.8% | 37.6% | 20.5% | 17.9% | 38.3% | 18.6% | 19.4% | 37.9% |
| LYNN | 2,572 | 15.3% | 22.9% | 38.2% | 18.8% | 22.7% | 41.5% | 17.1% | 22.8% | 39.9% |
| MANSFIELD | 1,484 | 15.7% | 13.3% | 28.9% | 13.2% | 9.8% | 23.0% | 14.5% | 11.7% | 26.1% |
| MARBLEHEAD | 1,029 | 15.3% | 9.6% | 24.9% | 15.0% | 6.6% | 21.6% | 15.2% | 8.2% | 23.3% |
| MARSHFIELD [±] | 1,406 | 11.6% | 12.5% | 24.1% | 10.7% | 11.9% | 22.6% | 11.2% | 12.2% | 23.4% |
| MEDFORD | 967 | 18.4% | 24.1% | 42.5% | 17.5% | 16.1% | 33.6% | 18.0% | 20.5% | 38.5% |
| MIDDLEBOROUGH | 824 | 19.0% | 20.8% | 39.7% | 18.6% | 16.8% | 35.4% | 18.8% | 18.9% | 37.7% |
| NASHOBA | 927 | 15.0% | 12.8% | 27.8% | 18.6% | 6.6% | 25.2% | 16.7% | 9.8% | 26.5% |
| NATICK | 1,265 | 14.4% | 13.5% | 27.9% | 18.8% | 10.1% | 28.9% | 16.5% | 11.9% | 28.4% |
| NEEDHAM | 1,437 | 11.7% | 8.5% | 20.2% | 12.0% | 6.2% | 18.1% | 11.8% | 7.4% | 19.2% |
| NEW BEDFORD | 3,457 | 16.2% | 22.0% | 38.2% | 15.7% | 20.3% | 36.0% | 15.9% | 21.2% | 37.2% |
| NEWBURYPORT | 645 | 16.5% | 8.4% | 24.9% | 17.1% | 7.4% | 24.4% | 16.7% | 7.9% | 24.7% |
| NEWTON | 3,235 | 16.8% | 9.3% | 26.1% | 11.3% | 8.8% | 20.0% | 14.1% | 9.0% | 23.1% |
| NORTH ANDOVER | 1,320 | 17.4% | 12.0% | 29.4% | 17.9% | 8.9% | 26.8% | 17.7% | 10.4% | 28.0% |
| NORTH ATTLEBOROUGH | 973 | 19.3% | 15.4% | 34.8% | 19.8% | 11.4% | 31.2% | 19.5% | 13.5% | 33.0% |
| NORTH BERKSHIRE UNION | 109 | 20.5% | 22.7% | 43.2% | 27.7% | 16.9% | 44.6% | 24.8% | 19.3% | 44.0% |
| NORTHAMPTON | 798 | 14.2% | 16.2% | 30.3% | 16.4% | 11.4% | 27.8% | 15.3% | 13.8% | 29.1% |
| NORTHBORO SOUTHBORO | 1,162 | 24.0% | 8.5% | 32.5% | 17.5% | 8.5% | 26.0% | 20.9% | 8.5% | 29.4% |
| NORTHBRIDGE | 353 | 15.3% | 21.9% | 37.2% | 13.4% | 20.4% | 33.8% | 14.4% | 21.2% | 35.7% |

| Grades 1, 4, 7, 10 | | Males | | | Females | | | Males and Females | | |
|---|--|------------------------|------------------|---------------------------------|------------------------|------------------|---------------------------------|--------------------------|------------------|---------------------------------|
| Essential School Health District | Total number of students screened (N) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| PITTSFIELD | 318 | 14.4% | 18.6% | 32.9% | 11.3% | 23.8% | 35.1% | 12.9% | 21.1% | 34.0% |
| PLYMOUTH | 2,610 | 18.9% | 20.5% | 39.4% | 17.4% | 14.2% | 31.6% | 18.2% | 17.4% | 35.5% |
| PROVINCETOWN | 44 | 8.7% | 26.1% | 34.8% | 19.0% | 14.3% | 33.3% | 13.6% | 20.5% | 34.1% |
| QUINCY | 2,432 | 15.1% | 18.0% | 33.1% | 17.9% | 13.4% | 31.3% | 16.4% | 15.8% | 32.2% |
| ROCKPORT | 295 | 17.5% | 13.6% | 31.2% | 13.5% | 9.2% | 22.7% | 15.6% | 11.5% | 27.1% |
| SANDWICH | 1,091 | 13.8% | 11.5% | 25.2% | 13.4% | 8.6% | 21.9% | 13.6% | 10.1% | 23.6% |
| SCITUATE | 694 | 13.4% | 11.1% | 24.5% | 11.1% | 8.7% | 19.8% | 12.2% | 9.9% | 22.2% |
| SPRINGFIELD | 4,964 | 18.7% | 25.4% | 44.2% | 18.9% | 24.1% | 43.0% | 18.8% | 24.8% | 43.6% |
| STOUGHTON | 1,198 | 17.5% | 22.0% | 39.5% | 18.9% | 18.9% | 37.9% | 18.2% | 20.5% | 38.7% |
| TAUNTON | 2,515 | 19.9% | 22.8% | 42.7% | 18.6% | 16.0% | 34.6% | 19.2% | 19.2% | 38.5% |
| WALPOLE | 1,145 | 19.3% | 11.8% | 31.1% | 17.1% | 7.4% | 24.5% | 18.2% | 9.6% | 27.8% |
| WALTHAM | 1,385 | 18.5% | 21.6% | 40.1% | 18.6% | 21.6% | 40.2% | 18.6% | 21.6% | 40.1% |
| WEST BRIDGEWATER | 344 | 23.2% | 18.6% | 41.8% | 19.8% | 10.8% | 30.5% | 21.5% | 14.8% | 36.3% |
| WESTON | 539 | 8.8% | 5.8% | 14.6% | 8.7% | 2.6% | 11.3% | 8.7% | 4.3% | 13.0% |
| WEYMOUTH | 1,860 | 20.4% | 18.6% | 38.9% | 21.5% | 17.2% | 38.7% | 20.9% | 17.9% | 38.8% |
| WILMINGTON | 1,173 | 12.5% | 19.2% | 31.8% | 17.4% | 15.6% | 33.0% | 15.0% | 17.4% | 32.4% |
| WORCESTER | 2,806 | 17.0% | 19.7% | 36.7% | 17.8% | 17.8% | 35.7% | 17.4% | 18.8% | 36.2% |
| TOTAL | 109,674 | 17.1% | 18.9% | 35.9% | 16.8% | 15.7% | 32.5% | 16.9% | 17.3% | 34.3% |

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis. Definitions: *Underweight* – BMI for age percentile < 5th percentile; *Healthy weight* – BMI for age percentile between 5th and 85th percentile; *Overweight* – BMI for age percentile between 85th and 95th percentile; *Obese* – BMI for age percentile ≥ 95th percentile.

Table 2. Body Mass Index Screening Results for Children in Grade 1 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|--------------------------|
| | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| ACTON-BOXBOROUGH | 392 | 76.7% | 11.0% | 10.5% | 21.4% | 80.2% | 11.5% | 7.1% | 18.7% | 20.2% |
| AMESBURY | 191 | 72.7% | 11.4% | 6.8%* | 18.2% | 71.8% | 11.7% | 10.7% | 22.3% | 20.4% |
| ANDOVER | 455 | 72.8% | 15.6% | 10.7% | 26.3% | 75.5% | 15.1% | 6.6% | 21.7% | 24.2% |
| ARLINGTON | 387 | 87.4% | 7.9% | 2.6%* | 10.5% | 89.3% | 6.6% | 2.5%* | 9.1% | 9.8% |
| ASHBURNHAM- WESTMINSTER | 159 | 68.7% | 15.7% | 15.7% | 31.3% | 55.3% | 31.6% | 10.5%* | 42.1% | 36.5% |
| ATTLEBORO | 429 | 65.2% | 11.8% | 19.5% | 31.2% | 62.0% | 18.8% | 15.9% | 34.6% | 32.9% |
| BARNSTABLE | 413 | 60.2% | 21.4% | 17.3% | 38.8% | 59.9% | 18.9% | 20.3% | 39.2% | 39.0% |
| BELCHERTOWN | 194 | 72.4% | 13.3% | 13.3% | 26.5% | 74.0% | 13.5% | 12.5% | 26.0% | 26.3% |
| BERKSHIRE HILLS | 54 | 65.5% | 17.2%* | 13.8%* | 31.0% | 56.0% | 8.0%* | 32.0%* | 40.0% | 35.2% |
| BILLERICA [±] | 501 | 70.9% | 12.7% | 12.7% | 25.4% | 76.4% | 7.7% | 12.4% | 20.2% | 23.0% |
| BOSTON [±] | 3,792 | 50.3% | 18.2% | 21.2% | 39.4% | 48.2% | 17.7% | 22.3% | 40.0% | 39.7% |
| BRAINTREE | 436 | 69.5% | 13.3% | 14.6% | 27.9% | 65.7% | 19.0% | 12.4% | 31.4% | 29.6% |
| BRIDGEWATER RAYNHAM | 382 | 62.0% | 15.6% | 21.0% | 36.6% | 74.6% | 14.1% | 10.7% | 24.9% | 31.2% |
| BROCKTON | 1,087 | 58.4% | 19.7% | 19.5% | 39.1% | 61.3% | 17.2% | 19.9% | 37.1% | 38.2% |
| BROOKLINE | 503 | 69.1% | 19.9% | 8.1% | 27.9% | 81.8% | 12.1% | 3.9%* | 16.0% | 22.5% |
| CAMBRIDGE | 478 | 65.5% | 13.6% | 17.9% | 31.5% | 70.8% | 14.8% | 13.2% | 28.0% | 29.7% |
| CANTON | 257 | 64.9% | 22.1% | 12.2% | 34.4% | 69.8% | 17.5% | 12.7% | 30.2% | 32.3% |
| CENTRAL BERKSHIRE | 130 | 65.7% | 22.4% | 10.4%* | 32.8% | 71.4% | 15.9% | 11.1%* | 27.0% | 30.0% |
| CHICOPEE | 498 | 62.0% | 17.3% | 20.8% | 38.0% | 63.4% | 17.7% | 16.5% | 34.2% | 36.1% |
| DOUGLAS | 110 | 70.5% | 18.2%* | 6.8%* | 25.0% | 83.3% | 4.5%* | 7.6%* | 12.1% | 17.3% |
| EAST LONGMEADOW | 199 | 76.5% | 18.4% | 5.1%* | 23.5% | 66.3% | 13.9% | 18.8% | 32.7% | 28.1% |
| FALL RIVER | 766 | 66.0% | 14.5% | 18.2% | 32.8% | 66.1% | 15.3% | 15.8% | 31.1% | 32.0% |
| FITCHBURG | 370 | 51.9% | 20.6% | 23.8% | 44.4% | 55.8% | 16.6% | 23.8% | 40.3% | 42.4% |
| GARDNER | 190 | 73.9% | 10.2%* | 10.2%* | 20.5% | 71.6% | 7.8%* | 15.7% | 23.5% | 22.1% |

| Grade 1 | Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|-------------------------|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|--------------------------|
| | | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| GEORGETOWN | 133 | 69.0% | 17.2% | 10.3%* | 27.6% | 80.4% | 10.9%* | 4.3%* | 15.2% | 23.3% | |
| GILL-MONTAGUE | 77 | 80.5% | 7.3%* | 9.8%* | 17.1%* | 63.9% | 16.7%* | 19.4%* | 36.1% | 26.0% | |
| GLOUCESTER | 188 | 71.1% | 15.6% | 11.1% | 26.7% | 68.4% | 16.3% | 13.3% | 29.6% | 28.2% | |
| GRANBY | 64 | 50.0% | 34.4% | 12.5%* | 46.9% | 62.5% | 21.9%* | 12.5%* | 34.4% | 40.6% | |
| HADLEY | 35 | 47.1%* | 23.5%* | 29.4%* | 52.9%* | 55.6% | 27.8%* | 16.7%* | 44.4%* | 48.6%* | |
| HAMPDEN WILBRAHAM | 216 | 63.3% | 18.3% | 13.8% | 32.1% | 71.0% | 16.8% | 8.4%* | 25.2% | 28.7% | |
| HAMPSHIRE | 142 | 70.3% | 7.8%* | 20.3% | 28.1% | 60.3% | 15.4% | 24.4% | 39.7% | 34.5% | |
| HARWICH | 101 | 62.7% | 18.6% | 16.9% | 35.6% | 71.4% | 9.5%* | 14.3%* | 23.8% | 30.7% | |
| HAVERHILL | 460 | 57.9% | 17.5% | 23.8% | 41.3% | 66.4% | 15.9% | 16.8% | 32.7% | 37.2% | |
| HOLYOKE | 297 | 51.3% | 24.4% | 21.8% | 46.2% | 57.4% | 17.7% | 22.0% | 39.7% | 43.1% | |
| HUDSON | 204 | 68.3% | 17.3% | 14.4% | 31.7% | 69.0% | 16.0% | 12.0% | 28.0% | 29.9% | |
| LAWRENCE | 863 | 54.3% | 15.7% | 27.7% | 43.5% | 55.8% | 14.6% | 27.4% | 42.0% | 42.8% | |
| LEOMINSTER | 456 | 62.9% | 15.3% | 20.5% | 35.8% | 61.2% | 19.4% | 15.9% | 35.2% | 35.5% | |
| LEXINGTON | 382 | 74.3% | 11.5% | 6.8% | 18.3% | 80.1% | 9.4% | 4.7%* | 14.1% | 16.2% | |
| LOWELL | 1,040 | 63.1% | 14.7% | 20.2% | 34.9% | 65.1% | 15.9% | 16.1% | 32.0% | 33.6% | |
| LUDLOW | 224 | 69.8% | 14.3% | 14.3% | 28.6% | 66.3% | 19.4% | 13.3% | 32.7% | 30.4% | |
| LYNN | 835 | 59.4% | 15.3% | 22.5% | 37.9% | 58.7% | 15.3% | 23.9% | 39.2% | 38.6% | |
| MANSFIELD | 318 | 75.7% | 10.3% | 5.4% | 15.7% | 75.9% | 8.3% | 4.5%* | 12.8% | 14.5% | |
| MARBLEHEAD | 254 | 76.7% | 12.8% | 7.5% | 20.3% | 82.6% | 13.2% | 2.5%* | 15.7% | 18.1% | |
| MARSHFIELD [‡] | 327 | 71.3% | 19.9% | 5.8% | 25.7% | 75.6% | 12.8% | 8.3% | 21.2% | 23.5% | |
| MEDFORD | 325 | 57.9% | 15.7% | 23.0% | 38.8% | 63.9% | 17.7% | 16.3% | 34.0% | 36.6% | |
| MIDDLEBOROUGH | 268 | 61.0% | 19.1% | 17.6% | 36.8% | 62.9% | 22.7% | 14.4% | 37.1% | 36.9% | |
| NASHOBA | 238 | 76.2% | 13.9% | 8.2% | 22.1% | 72.4% | 19.8% | 6.9% | 26.7% | 24.4% | |
| NATICK | 410 | 73.9% | 11.9% | 11.5% | 23.4% | 65.1% | 20.8% | 9.9% | 30.7% | 26.8% | |
| NEEDHAM | 422 | 81.8% | 8.2% | 4.1%* | 12.3% | 83.7% | 8.9% | 3.0%* | 11.9% | 12.1% | |
| NEW BEDFORD | 1,068 | 62.3% | 16.3% | 20.1% | 36.5% | 63.6% | 15.2% | 19.3% | 34.6% | 35.6% | |
| NEWBURYPORT | 148 | 78.3% | 18.3% | 3.3%* | 21.7% | 71.6% | 20.5% | 5.7%* | 26.1% | 24.3% | |

| Grade 1 | Males | | | | | Females | | | | Males and Females |
|-----------------------|----------------------------------|-----------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|
| | Essential School Health District | Total students screened (N) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| NEWTON | 826 | 73.4% | 16.1% | 7.0% | 23.2% | 75.1% | 11.9% | 9.3% | 21.2% | 22.3% |
| NORTH ANDOVER | 341 | 77.0% | 14.0% | 7.3% | 21.3% | 76.7% | 16.0% | 7.4% | 23.3% | 22.3% |
| NORTH ATTLEBOROUGH | 360 | 63.7% | 18.1% | 16.4% | 34.5% | 69.3% | 16.9% | 12.2% | 29.1% | 31.7% |
| NORTH BERKSHIRE UNION | 31 | 61.5% | 15.4% | 23.1% | 38.5% | 55.6% | 22.2% | 11.1% | 33.3% | 35.5% |
| NORTHAMPTON | 175 | 70.0% | 17.8% | 11.1% | 28.9% | 71.8% | 12.9% | 14.1% | 27.1% | 28.0% |
| NORTHBORO SOUTHBORO | 379 | 62.3% | 29.4% | 7.4% | 36.8% | 73.0% | 20.9% | 5.4%* | 26.4% | 32.7% |
| PLYMOUTH | 680 | 65.9% | 14.6% | 16.5% | 31.1% | 72.4% | 16.2% | 9.9% | 26.1% | 28.5% |
| PROVINCETOWN | 7 | 75.0%* | 0.0%* | 25.0%* | 25.0%* | 100.0%* | 0.0%* | 0.0%* | 0.0%* | 14.3%* |
| QUINCY | 635 | 64.1% | 14.9% | 17.6% | 32.5% | 65.0% | 20.9% | 12.4% | 33.2% | 32.9% |
| ROCKPORT | 73 | 64.1% | 17.9%* | 17.9%* | 35.9% | 85.3% | 11.8%* | 2.9%* | 14.7%* | 26.0% |
| SANDWICH | 256 | 72.1% | 18.4% | 6.6%* | 25.0% | 71.7% | 16.7% | 7.5%* | 24.2% | 24.6% |
| SCITUATE | 216 | 80.2% | 12.9% | 6.0%* | 19.0% | 79.0% | 11.0% | 9.0%* | 20.0% | 19.4% |
| SPRINGFIELD | 1,718 | 60.9% | 19.2% | 18.0% | 37.2% | 61.8% | 16.6% | 20.2% | 36.8% | 37.0% |
| STOUGHTON | 298 | 61.5% | 17.9% | 19.2% | 37.2% | 54.9% | 24.6% | 19.0% | 43.7% | 40.3% |
| TAUNTON | 879 | 55.4% | 18.7% | 24.5% | 43.2% | 75.4% | 13.8% | 10.6% | 24.4% | 32.1% |
| WALPOLE | 304 | 72.0% | 17.2% | 9.6% | 26.8% | 79.6% | 11.6% | 6.1%* | 17.7% | 22.4% |
| WALTHAM | 368 | 61.2% | 15.3% | 23.0% | 38.3% | 63.5% | 18.2% | 18.2% | 36.5% | 37.5% |
| WEST BRIDGEWATER | 82 | 63.4% | 19.5%* | 7.3%* | 26.8% | 73.2% | 12.2%* | 14.6%* | 26.8% | 26.8% |
| WESTON | 155 | 81.6% | 9.2%* | 6.9%* | 16.1% | 85.3% | 8.8%* | 2.9%* | 11.8% | 14.2% |
| WEYMOUTH | 482 | 64.4% | 17.4% | 16.3% | 33.7% | 69.3% | 17.0% | 12.8% | 29.8% | 32.0% |
| WILMINGTON | 274 | 66.4% | 12.1% | 20.8% | 32.9% | 64.8% | 17.6% | 16.0% | 33.6% | 33.2% |
| WORCESTER | 1,435 | 61.2% | 14.9% | 18.1% | 33.0% | 56.8% | 18.8% | 17.0% | 35.8% | 34.4% |

TOTAL 31,842 63.7% 16.4% 16.5% 32.9% 65.5% 15.9% 15.0% 31.0% 31.9%

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis. Definitions: *Underweight* – BMI for age percentile < 5th percentile; *Healthy weight* – BMI for age percentile between 5th and 85th percentile; *Overweight* – BMI for age percentile between 85th and 95th percentile; *Obese* – BMI for age percentile ≥ 95th percentile.

* Rate should be interpreted cautiously due to the small number of students in this category (< 10 students).

± Data for Boston, Billerica, and Marshfield is currently being verified.

Table 3. Body Mass Index Screening Results for Children in Grade 4 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|--------------------------|
| | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| ACTON-BOXBOROUGH | 458 | 69.2% | 16.9% | 13.1% | 30.0% | 77.8% | 12.7% | 6.8% | 19.5% | 24.9% |
| AMESBURY | 245 | 41.4% | 24.1% | 33.8% | 57.9% | 53.6% | 10.7% | 33.0% | 43.8% | 51.4% |
| ANDOVER | 511 | 65.5% | 21.8% | 11.1% | 33.0% | 74.4% | 18.0% | 6.4% | 24.4% | 28.8% |
| ARLINGTON | 358 | 82.1% | 7.6% | 8.7% | 16.3% | 88.5% | 5.7% | 4.0%* | 9.8% | 13.1% |
| ASHBURNHAM-WESTMINSTER | 185 | 57.6% | 21.7% | 20.7% | 42.4% | 65.6% | 12.9% | 21.5% | 34.4% | 38.4% |
| ATTLEBORO | 396 | 54.8% | 18.4% | 24.1% | 42.5% | 56.0% | 22.0% | 20.2% | 42.3% | 42.4% |
| BARNSTABLE | 427 | 56.9% | 23.6% | 18.2% | 41.8% | 60.9% | 19.3% | 18.8% | 38.1% | 40.0% |
| BELCHERTOWN | 189 | 57.6% | 23.5% | 16.5% | 40.0% | 67.3% | 19.2% | 12.5% | 31.7% | 35.4% |
| BERKSHIRE HILLS | 74 | 65.8% | 15.8%* | 18.4%* | 34.2% | 66.7% | 13.9% | 19.4%* | 33.3%* | 33.8% |
| BILLERICA [±] | 535 | 58.8% | 15.9% | 23.3% | 39.2% | 64.4% | 19.2% | 15.1% | 34.3% | 37.0% |
| BOSTON [±] | 3,173 | 48.2% | 19.3% | 24.3% | 43.7% | 45.5% | 20.8% | 25.5% | 46.3% | 45.0% |
| BRAINTREE | 420 | 60.8% | 18.1% | 20.6% | 38.7% | 71.0% | 12.2% | 14.9% | 27.1% | 32.6% |
| BRIDGEWATER RAYNHAM | 517 | 59.0% | 22.0% | 17.5% | 39.6% | 67.9% | 19.3% | 10.8% | 30.1% | 35.0% |
| BROCKTON | 1,126 | 53.6% | 18.0% | 25.1% | 43.2% | 54.2% | 17.2% | 25.1% | 42.3% | 42.7% |
| BROOKLINE | 449 | 68.1% | 13.3% | 17.1% | 30.5% | 80.3% | 10.9% | 6.7% | 17.6% | 23.6% |
| CAMBRIDGE | 399 | 61.1% | 15.6% | 21.8% | 37.4% | 62.8% | 18.1% | 17.6% | 35.6% | 36.6% |
| CANTON | 234 | 68.5% | 13.5% | 18.0% | 31.5% | 76.4% | 13.0% | 9.8% | 22.8% | 26.9% |
| CENTRAL BERKSHIRE | 153 | 67.1% | 16.4% | 15.1% | 31.5% | 63.8% | 13.8% | 22.5% | 36.3% | 34.0% |
| CHICOPEE | 502 | 55.2% | 20.9% | 22.7% | 43.7% | 60.9% | 20.4% | 18.2% | 38.7% | 41.4% |
| DOUGLAS | 134 | 63.3% | 20.0% | 15.0%* | 35.0% | 64.9% | 23.0% | 8.1%* | 31.1% | 32.8% |
| EAST LONGMEADOW | 213 | 61.7% | 21.3% | 17.0% | 38.3% | 71.4% | 10.1% | 16.8% | 26.9% | 31.9% |
| FALL RIVER | 748 | 59.7% | 18.6% | 19.5% | 38.1% | 60.6% | 19.6% | 19.8% | 39.4% | 38.8% |
| FITCHBURG | 415 | 47.3% | 20.3% | 29.0% | 49.3% | 53.4% | 18.3% | 26.0% | 44.2% | 46.7% |
| GARDNER | 182 | 48.6% | 12.8% | 34.9% | 47.7% | 61.6% | 17.8% | 16.4% | 34.2% | 42.3% |
| GEORGETOWN | 124 | 73.3% | 15.0%* | 11.7%* | 26.7% | 68.8% | 25.0% | 6.3%* | 31.3% | 29.0% |

| Grade 4 | Males | | | | | Females | | | | Males and Females |
|-------------------------|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|
| | Essential School Health District | Total number of students screened (N) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| GILL-MONTAGUE | 80 | 44.7% | 28.9% | 15.8% | 44.7% | 61.9% | 19.0%* | 16.7%* | 35.7% | 40.0% |
| GLOUCESTER | 239 | 67.5% | 13.2% | 16.7% | 29.8% | 60.8% | 13.6% | 19.2% | 32.8% | 31.4% |
| GRANBY | 90 | 66.7% | 12.5%* | 20.8% | 33.3% | 73.8% | 7.1%* | 16.7%* | 23.8% | 28.9% |
| HADLEY | 45 | 56.5% | 30.4%* | 8.7%* | 39.1%* | 63.6% | 13.6%* | 22.7%* | 36.4%* | 37.8% |
| HAMPDEN WILBRAHAM | 256 | 69.2% | 16.5% | 12.8% | 29.3% | 72.4% | 20.3% | 4.1%* | 24.4% | 27.0% |
| HAMPSHIRE | 128 | 66.7% | 15.8%* | 15.8%* | 31.6% | 71.8% | 9.9%* | 15.5% | 25.4% | 28.1% |
| HARWICH | 103 | 56.4% | 18.2% | 23.6% | 41.8% | 60.4% | 31.3% | 8.3%* | 39.6% | 40.8% |
| HAVERHILL | 622 | 52.3% | 17.8% | 27.2% | 45.0% | 60.1% | 17.2% | 20.6% | 37.8% | 41.6% |
| HOLYOKE | 344 | 50.3% | 14.1% | 32.2% | 46.3% | 49.7% | 25.1% | 22.8% | 47.9% | 47.1% |
| HUDSON | 190 | 58.2% | 16.5% | 24.2% | 40.7% | 55.6% | 18.2% | 25.3% | 43.4% | 42.1% |
| LAWRENCE | 866 | 50.1% | 18.9% | 30.4% | 49.2% | 47.9% | 23.0% | 27.9% | 50.9% | 50.0% |
| LEOMINSTER | 563 | 40.2% | 15.1% | 43.1% | 58.2% | 46.4% | 17.9% | 32.9% | 50.8% | 54.9% |
| LEXINGTON | 512 | 74.2% | 16.3% | 8.3% | 24.6% | 80.0% | 11.2% | 7.3% | 18.5% | 21.5% |
| LOWELL | 979 | 52.7% | 16.6% | 27.7% | 44.3% | 60.8% | 16.3% | 20.4% | 36.7% | 40.6% |
| LUDLOW | 242 | 50.0% | 20.6% | 27.0% | 47.6% | 59.5% | 21.6% | 19.0% | 40.5% | 44.2% |
| LYNN | 876 | 54.0% | 15.4% | 27.0% | 42.4% | 48.2% | 19.5% | 24.3% | 43.8% | 43.2% |
| MANSFIELD | 378 | 60.3% | 16.9% | 18.0% | 34.9% | 68.3% | 16.9% | 11.1% | 28.0% | 31.5% |
| MARBLEHEAD | 263 | 65.5% | 23.7% | 10.1% | 33.8% | 78.2% | 13.7% | 7.3% | 21.0% | 27.8% |
| MARSHFIELD [‡] | 372 | 71.4% | 10.6% | 12.7% | 23.3% | 75.4% | 13.7% | 6.0% | 19.7% | 21.5% |
| MEDFORD | 323 | 45.4% | 24.2% | 30.4% | 54.6% | 62.8% | 17.1% | 17.8% | 34.9% | 46.7% |
| MIDDLEBOROUGH | 277 | 61.3% | 17.2% | 20.9% | 38.0% | 69.3% | 15.8% | 14.0% | 29.8% | 34.7% |
| NASHOBA | 243 | 71.4% | 14.3% | 12.8% | 27.1% | 70.0% | 21.8% | 7.3% | 29.1% | 28.0% |
| NATICK | 279 | 70.1% | 17.9% | 9.7% | 27.6% | 69.0% | 16.6% | 10.3% | 26.9% | 27.2% |
| NEEDHAM | 418 | 75.1% | 13.4% | 10.0% | 23.4% | 75.6% | 9.2% | 8.3% | 17.5% | 20.3% |
| NEW BEDFORD | 1,006 | 56.8% | 17.0% | 24.5% | 41.4% | 60.1% | 15.8% | 22.8% | 38.7% | 40.1% |
| NEWBURYPORT | 164 | 72.4% | 14.9% | 12.6% | 27.6% | 72.7% | 13.0% | 10.4%* | 23.4% | 25.6% |
| NEWTON | 851 | 68.1% | 20.9% | 9.0% | 29.9% | 76.2% | 10.9% | 8.7% | 19.6% | 24.4% |
| NORTH ANDOVER | 353 | 67.1% | 19.0% | 13.3% | 32.3% | 67.7% | 23.1% | 6.7% | 29.7% | 30.9% |

| Grade 4 | Males | | | | | Females | | | | Males and Females |
|-----------------------|----------------------------------|---------------------------------------|--------------------|-----------------|--------------|--------------------------|--------------------|-----------------|--------------|--------------------------|
| | Essential School Health District | Total number of students screened (N) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) |
| NORTH ATTLEBOROUGH | 364 | 59.9% | 20.9% | 17.6% | 38.5% | 57.6% | 22.6% | 14.7% | 37.3% | 37.9% |
| NORTH BERKSHIRE UNION | 45 | 52.4% | 23.8%* | 23.8%* | 47.6% | 66.7% | 20.8%* | 12.5%* | 33.3%* | 40.0% |
| NORTHAMPTON | 230 | 70.3% | 12.6% | 16.2% | 28.8% | 60.5% | 21.8% | 14.3% | 36.1% | 32.6% |
| NORTHBORO SOUTHBORO | 391 | 70.3% | 17.9% | 10.8% | 28.7% | 73.5% | 15.3% | 10.2% | 25.5% | 27.1% |
| PITTSFIELD | 318 | 67.1% | 14.4% | 18.6% | 32.9% | 64.9% | 11.3% | 23.8% | 35.1% | 34.0% |
| PLYMOUTH | 639 | 54.1% | 19.1% | 24.8% | 43.9% | 64.2% | 17.7% | 15.3% | 33.0% | 39.0% |
| PROVINCETOWN | 12 | 20.0%* | 20.0%* | 60.0%* | 80.0%* | 57.1%* | 28.6%* | 14.3%* | 42.9%* | 58.3%* |
| QUINCY | 561 | 58.9% | 19.2% | 21.2% | 40.4% | 65.9% | 19.3% | 14.4% | 33.7% | 37.3% |
| ROCKPORT | 68 | 79.5% | 7.7%* | 12.8%* | 20.5%* | 72.4% | 10.3%* | 13.8%* | 24.1% | 22.1% |
| SANDWICH | 276 | 67.5% | 15.9% | 16.6% | 32.5% | 75.2% | 15.2% | 8.8% | 24.0% | 28.6% |
| SCITUATE | 284 | 74.3% | 11.8% | 9.7% | 21.5% | 75.0% | 9.3% | 10.7% | 20.0% | 20.8% |
| SPRINGFIELD | 1,601 | 49.4% | 18.9% | 29.2% | 48.1% | 51.5% | 19.8% | 25.5% | 45.3% | 46.7% |
| STOUGHTON | 305 | 61.9% | 13.8% | 21.9% | 35.6% | 60.7% | 14.5% | 23.4% | 37.9% | 36.7% |
| TAUNTON | 629 | 48.9% | 25.2% | 23.7% | 48.9% | 54.2% | 25.0% | 19.6% | 44.6% | 46.7% |
| WALPOLE | 317 | 64.6% | 23.4% | 10.8% | 34.2% | 65.4% | 21.4% | 11.3% | 32.7% | 33.4% |
| WALTHAM | 321 | 54.3% | 14.6% | 31.1% | 45.7% | 55.4% | 17.2% | 27.4% | 44.6% | 45.2% |
| WEST BRIDGEWATER | 88 | 44.0% | 26.0% | 30.0% | 56.0% | 76.3% | 18.4%* | 5.3%* | 23.7%* | 42.0% |
| WESTON | 180 | 72.7% | 14.3% | 9.1% | 23.4% | 79.6% | 13.6% | 2.9%* | 16.5% | 19.4% |
| WEYMOUTH | 453 | 51.8% | 23.7% | 21.4% | 45.1% | 53.7% | 18.8% | 25.8% | 44.5% | 44.8% |
| WILMINGTON | 317 | 70.3% | 11.5% | 15.2% | 26.7% | 65.1% | 18.4% | 15.1% | 33.6% | 30.0% |
| WORCESTER | 1,371 | 55.5% | 19.2% | 21.3% | 40.5% | 59.7% | 16.8% | 18.7% | 35.5% | 38.1% |
| TOTAL | 31,999 | 57.7% | 18.1% | 21.6% | 39.7% | 61.4% | 17.5% | 18.0% | 35.5% | 37.6% |

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis. Definitions: *Underweight* – BMI for age percentile < 5th percentile; *Healthy weight* – BMI for age percentile between 5th and 85th percentile; *Overweight* – BMI for age percentile between 85th and 95th percentile; *Obese* – BMI for age percentile ≥ 95th percentile.

* Rate should be interpreted cautiously due to the small number of students in this category (< 10 students).

± Data for Boston, Billerica, and Marshfield is currently being verified.

Table 4. Body Mass Index Screening Results for Children in Grade 7 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened | Males | | | | Females | | | | Males and Females |
|----------------------------------|-----------------------------------|----------------|-------------|--------|----------------------|----------------|-------------|--------|----------------------|----------------------|
| | | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Over-weight or Obese |
| | | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |
| ACTON-BOXBOROUGH | 404 | 74.0% | 17.8% | 4.7%* | 22.5% | 83.8% | 10.2% | 2.1%* | 12.3% | 16.6% |
| AMESBURY | 176 | 68.1% | 9.6%* | 17.0% | 26.6% | 70.7% | 7.3%* | 15.9% | 23.2% | 25.0% |
| ANDOVER | 492 | 69.1% | 10.4% | 18.6% | 29.0% | 77.1% | 11.7% | 10.3% | 22.0% | 25.8% |
| ARLINGTON | 339 | 88.1% | 3.8%* | 6.9% | 10.6% | 88.8% | 2.8%* | 3.9%* | 6.7% | 8.6% |
| ASHBURNHAM-WESTMINSTER | 173 | 75.6% | 19.8% | 0.0%* | 19.8% | 77.0% | 20.7% | 0.0%* | 20.7% | 20.2% |
| BARNSTABLE | 401 | 55.2% | 18.7% | 25.7% | 44.3% | 62.0% | 19.3% | 17.0% | 36.3% | 40.9% |
| BELCHERTOWN | 229 | 71.8% | 25.6% | 2.6%* | 28.2% | 81.3% | 15.2% | 1.8%* | 17.0% | 22.7% |
| BERKSHIRE HILLS | 96 | 66.1% | 17.7% | 16.1% | 33.9% | 82.4% | 8.8%* | 8.8%* | 17.6%* | 28.1% |
| BILLERICA [±] | 526 | 45.1% | 29.1% | 11.1% | 40.2% | 42.2% | 30.5% | 9.6% | 40.1% | 40.1% |
| BOSTON [±] | 2,876 | 38.6% | 24.4% | 26.4% | 50.7% | 44.9% | 20.5% | 22.8% | 43.3% | 47.1% |
| BRAINTREE | 408 | 71.4% | 9.1% | 12.3% | 21.4% | 66.0% | 12.8% | 13.8% | 26.6% | 23.8% |
| BRIDGEWATER RAYNHAM | 471 | 59.4% | 9.8% | 28.9% | 38.7% | 71.7% | 7.3% | 18.0% | 25.4% | 32.9% |
| BROCKTON | 1,094 | 57.3% | 15.5% | 26.2% | 41.7% | 52.7% | 23.0% | 23.2% | 46.1% | 43.8% |
| BROOKLINE | 385 | 71.8% | 10.1% | 10.1% | 20.2% | 77.7% | 11.7% | 5.6% | 17.3% | 18.7% |
| CAMBRIDGE | 359 | 58.1% | 23.0% | 17.3% | 40.3% | 70.2% | 11.9% | 16.1% | 28.0% | 34.5% |
| CANTON | 219 | 60.0% | 20.0% | 19.0% | 39.0% | 70.6% | 16.0% | 5.9%* | 21.8% | 29.7% |
| CHICOPEE | 528 | 61.4% | 18.8% | 18.8% | 37.5% | 55.4% | 19.5% | 23.1% | 42.6% | 40.0% |
| DOUGLAS | 141 | 65.7% | 14.3% | 18.6% | 32.9% | 80.3% | 8.5%* | 11.3%* | 19.7% | 26.2% |
| EAST LONGMEADOW | 215 | 50.0% | 18.9% | 28.3% | 47.2% | 69.7% | 16.5% | 11.9% | 28.4% | 37.7% |
| FALL RIVER | 939 | 72.1% | 9.5% | 15.8% | 25.2% | 76.5% | 14.5% | 8.4% | 22.9% | 24.1% |
| FITCHBURG | 346 | 51.8% | 17.6% | 30.0% | 47.6% | 46.6% | 17.0% | 34.1% | 51.1% | 49.4% |
| GARDNER | 179 | 63.6% | 13.6% | 19.3% | 33.0% | 68.1% | 18.7% | 12.1% | 30.8% | 31.8% |
| GATEWAY | 80 | 55.6% | 19.4%* | 22.2%* | 41.7% | 70.5% | 18.2%* | 11.4%* | 29.5% | 35.0% |
| GEORGETOWN | 109 | 63.5% | 25.0% | 5.8%* | 30.8% | 52.6% | 22.8% | 15.8%* | 38.6% | 34.9% |
| GILL-MONTAGUE | 79 | 50.0% | 19.0%* | 28.6% | 47.6% | 51.4% | 18.9%* | 29.7% | 48.6% | 48.1% |

| Grade 7 | | Males | | | | Females | | | | Males and Females |
|----------------------------------|-----------------------------------|----------------|-------------|--------|----------------------|----------------|-------------|--------|----------------------|----------------------|
| Essential School Health District | Total number of students screened | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Over-weight or Obese |
| | (N) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |
| GLOUCESTER | 261 | 58.0% | 16.0% | 22.9% | 38.9% | 75.4% | 9.2% | 13.1% | 22.3% | 30.7% |
| GRANBY | 91 | 48.9% | 17.0%* | 29.8% | 46.8% | 56.8% | 15.9%* | 25.0% | 40.9% | 44.0% |
| HADLEY | 53 | 64.0% | 24.0%* | 12.0%* | 36.0%* | 71.4% | 17.9%* | 10.7%* | 28.6%* | 32.1% |
| HAMPDEN WILBRAHAM | 292 | 65.1% | 16.4% | 16.4% | 32.9% | 65.7% | 20.0% | 10.7% | 30.7% | 31.8% |
| HARWICH | 97 | 65.4% | 7.7%* | 25.0% | 32.7% | 68.9% | 15.6%* | 13.3%* | 28.9% | 30.9% |
| HAVERHILL | 569 | 55.1% | 18.8% | 24.1% | 42.9% | 59.0% | 16.9% | 22.9% | 39.8% | 41.5% |
| HOLYOKE | 422 | 52.3% | 17.8% | 27.1% | 44.9% | 55.3% | 25.0% | 19.2% | 44.2% | 44.5% |
| HUDSON | 207 | 61.8% | 10.1%* | 28.1% | 38.2% | 66.9% | 16.1% | 14.4% | 30.5% | 33.8% |
| LAWRENCE | 835 | 56.0% | 16.7% | 25.4% | 42.1% | 47.5% | 25.9% | 26.1% | 52.0% | 47.1% |
| LEOMINSTER | 456 | 54.5% | 15.8% | 28.9% | 44.7% | 64.5% | 16.3% | 17.2% | 33.5% | 39.7% |
| LEXINGTON | 500 | 67.4% | 19.1% | 9.7% | 28.8% | 82.2% | 8.7% | 6.8% | 15.5% | 21.8% |
| LOWELL | 976 | 51.8% | 18.5% | 23.8% | 42.3% | 60.7% | 18.4% | 17.1% | 35.5% | 38.9% |
| LUDLOW | 265 | 59.2% | 14.6% | 25.4% | 40.0% | 54.1% | 18.5% | 25.9% | 44.4% | 42.3% |
| MANSFIELD | 400 | 64.5% | 19.2% | 13.3% | 32.5% | 71.1% | 12.7% | 12.7% | 25.4% | 29.0% |
| MARBLEHEAD | 249 | 78.6% | 10.7% | 10.0% | 20.7% | 75.2% | 16.5% | 8.3%* | 24.8% | 22.5% |
| MARSHFIELD [‡] | 373 | 62.0% | 8.2% | 17.4% | 25.5% | 54.0% | 9.0% | 22.2% | 31.2% | 28.4% |
| MEDFORD | 319 | 65.6% | 14.4% | 17.5% | 31.9% | 66.7% | 17.6% | 14.5% | 32.1% | 32.0% |
| MIDDLEBOROUGH | 279 | 53.5% | 20.8% | 23.6% | 44.4% | 57.8% | 17.0% | 21.5% | 38.5% | 41.6% |
| NASHOBA | 245 | 64.8% | 16.8% | 17.6% | 34.4% | 73.3% | 17.5% | 8.3% | 25.8% | 30.2% |
| NATICK | 326 | 64.9% | 16.7% | 16.1% | 32.7% | 69.0% | 19.0% | 10.8% | 29.7% | 31.3% |
| NEEDHAM | 287 | 72.8% | 13.3% | 9.5% | 22.8% | 77.5% | 14.0% | 7.0%* | 20.9% | 22.0% |
| NEW BEDFORD | 870 | 55.4% | 15.6% | 27.2% | 42.9% | 58.3% | 17.8% | 23.0% | 40.8% | 41.8% |
| NEWBURYPORT | 142 | 73.0% | 13.5% | 10.1% | 23.6% | 84.9% | 11.3%* | 0.0%* | 11.3%* | 19.0% |
| NEWTON | 790 | 68.3% | 16.9% | 10.7% | 27.6% | 71.9% | 13.3% | 9.8% | 23.1% | 25.4% |
| NORTH ANDOVER | 317 | 74.1% | 10.8% | 14.6% | 25.3% | 76.7% | 14.5% | 8.2% | 22.6% | 24.0% |
| NORTH BERKSHIRE UNION | 33 | 60.0%* | 20.0%* | 20.0%* | 40.0%* | 34.8%* | 39.1%* | 26.1%* | 65.2% | 57.6% |
| NORTHAMPTON | 171 | 59.6% | 14.9% | 22.3% | 37.2% | 71.4% | 18.2% | 9.1%* | 27.3% | 32.7% |

| Grade 7 | | Males | | | | Females | | | | Males and Females |
|----------------------------------|-----------------------------------|----------------|--------------|--------------|----------------------|----------------|--------------|--------------|----------------------|----------------------|
| Essential School Health District | Total number of students screened | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Healthy Weight | Over-weight | Obese | Over-weight or Obese | Over-weight or Obese |
| | (N) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) | (%) |
| NORTHBORO SOUTHBORO | 392 | 67.2% | 23.7% | 7.5% | 31.2% | 71.8% | 17.0% | 9.2% | 26.2% | 28.6% |
| NORTHBRIDGE | 195 | 70.2% | 10.6% | 18.3% | 28.8% | 70.3% | 12.1% | 16.5% | 28.6% | 28.7% |
| PLYMOUTH | 583 | 53.9% | 22.2% | 22.2% | 44.4% | 65.9% | 16.9% | 16.2% | 33.1% | 38.8% |
| PROVINCETOWN | 10 | 87.5%* | 0.0%* | 12.5%* | 12.5%* | 100.0%* | 0.0%* | 0.0%* | 0.0%* | 10.0%* |
| QUINCY | 521 | 58.0% | 17.2% | 21.0% | 38.2% | 65.6% | 19.7% | 12.4% | 32.0% | 35.1% |
| ROCKPORT | 78 | 60.0% | 27.5% | 10.0%* | 37.5% | 73.7% | 13.2%* | 10.5%* | 23.7% | 30.8% |
| SANDWICH | 295 | 70.9% | 14.2% | 13.5% | 27.7% | 76.9% | 12.9% | 8.2% | 21.1% | 24.4% |
| SCITUATE | 194 | 58.2% | 16.5% | 19.8% | 36.3% | 76.7% | 13.6% | 5.8%* | 19.4% | 27.3% |
| SPRINGFIELD | 1,645 | 50.4% | 18.1% | 29.2% | 47.4% | 51.1% | 20.4% | 27.0% | 47.3% | 47.4% |
| STOUGHTON | 270 | 59.4% | 20.6% | 18.1% | 38.7% | 61.7% | 13.9% | 19.1% | 33.0% | 36.3% |
| TAUNTON | 641 | 56.4% | 16.6% | 26.1% | 42.7% | 55.3% | 18.8% | 25.0% | 43.8% | 43.2% |
| WALPOLE | 271 | 59.1% | 22.6% | 17.5% | 40.1% | 70.1% | 18.7% | 9.0% | 27.6% | 33.9% |
| WALTHAM | 347 | 57.1% | 23.0% | 17.8% | 40.8% | 61.5% | 19.9% | 16.0% | 35.9% | 38.6% |
| WEST BRIDGEWATER | 101 | 57.1% | 22.4% | 20.4% | 42.9% | 67.3% | 25.0% | 7.7%* | 32.7% | 37.6% |
| WESTON | 204 | 90.9% | 4.5%* | 2.7%* | 7.3%* | 94.7% | 3.2%* | 2.1%* | 5.3%* | 6.4% |
| WEYMOUTH | 437 | 59.2% | 16.1% | 22.0% | 38.1% | 61.2% | 19.6% | 15.9% | 35.5% | 36.8% |
| WILMINGTON | 323 | 61.6% | 13.9% | 23.2% | 37.1% | 52.3% | 15.7% | 18.6% | 34.3% | 35.6% |
| TOTAL | 27,596 | 58.7% | 17.2% | 20.4% | 37.7% | 62.7% | 17.2% | 16.3% | 33.5% | 35.6% |

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis.

Definitions: *Underweight* – BMI for age percentile < 5th percentile; *Healthy weight* – BMI for age percentile between 5th and 85th percentile; *Overweight* – BMI for age percentile between 85th and 95th percentile; *Obese* – BMI for age percentile ≥ 95th percentile.

* Rate should be interpreted cautiously due to the small number of students in this category (< 10 students).

± Data for Boston, Billerica, and Marshfield is currently being verified

Table 5. Body Mass Index Screening Results for Children in Grade 10 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|--------------------------|
| | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| ACTON-BOXBOROUGH | 412 | 75.9% | 12.1% | 9.8% | 21.9% | 85.6% | 8.5% | 3.7%* | 12.2% | 17.5% |
| AMESBURY | 169 | 51.1% | 15.9% | 33.0% | 48.9% | 70.4% | 22.2% | 6.2%* | 28.4% | 39.1% |
| ANDOVER | 313 | 81.5% | 9.3% | 8.6% | 17.9% | 84.1% | 11.3% | 4.0%* | 15.2% | 16.6% |
| ARLINGTON | 295 | 91.0% | 1.4%* | 6.3%* | 7.6% | 94.7% | 2.0%* | 2.6%* | 4.6%* | 6.1% |
| ASHBURNHAM-WESTMINSTER | 188 | 74.0% | 11.0% | 5.0%* | 16.0% | 75.0% | 8.0%* | 4.5%* | 12.5% | 14.4% |
| BARNSTABLE | 335 | 61.0% | 19.8% | 18.6% | 38.4% | 73.0% | 16.6% | 9.8% | 26.4% | 32.5% |
| BELCHERTOWN | 204 | 61.6% | 25.9% | 12.5% | 38.4% | 73.9% | 19.6% | 5.4%* | 25.0% | 32.4% |
| BERKSHIRE HILLS | 142 | 63.6% | 20.8% | 13.0% | 33.8% | 69.2% | 13.8% | 15.4% | 29.2% | 31.7% |
| BILLERICA [±] | 317 | 64.5% | 16.9% | 12.7% | 29.5% | 51.7% | 28.5% | 9.9% | 38.4% | 33.8% |
| BRAINTREE | 373 | 62.6% | 12.8% | 21.5% | 34.4% | 69.7% | 16.9% | 11.8% | 28.7% | 31.6% |
| BRIDGEWATER RAYNHAM | 433 | 60.7% | 19.4% | 17.4% | 36.8% | 77.2% | 12.9% | 8.6% | 21.6% | 28.6% |
| BROCKTON | 923 | 66.5% | 13.5% | 17.7% | 31.2% | 59.1% | 20.7% | 18.7% | 39.4% | 35.5% |
| BROOKLINE | 348 | 71.4% | 13.7% | 9.9% | 23.6% | 75.9% | 11.2% | 8.0% | 19.3% | 21.3% |
| CANTON | 193 | 72.8% | 16.5% | 8.7%* | 25.2% | 86.7% | 2.2%* | 8.9%* | 11.1% | 18.7% |
| CENTRAL BERKSHIRE | 155 | 60.2% | 19.3% | 20.5% | 39.8% | 66.7% | 16.7% | 15.3% | 31.9% | 36.1% |
| CHICOPEE | 611 | 51.7% | 24.4% | 23.5% | 47.9% | 61.5% | 25.3% | 12.8% | 38.2% | 43.2% |
| DOUGLAS | 102 | 53.5% | 16.3%* | 27.9% | 44.2% | 83.1% | 10.2%* | 6.8%* | 16.9% | 28.4% |
| EAST LONGMEADOW | 224 | 55.6% | 21.3% | 18.5% | 39.8% | 69.0% | 19.0% | 12.1% | 31.0% | 35.3% |
| FALL RIVER | 504 | 64.6% | 18.6% | 16.0% | 34.6% | 71.9% | 13.1% | 12.7% | 25.8% | 30.0% |
| FITCHBURG | 286 | 49.0% | 17.0% | 32.0% | 49.0% | 54.0% | 23.7% | 20.1% | 43.9% | 46.5% |
| GARDNER | 199 | 66.0% | 17.0% | 15.1% | 32.1% | 66.7% | 21.5% | 11.8% | 33.3% | 32.7% |
| GATEWAY | 61 | 67.9% | 17.9%* | 14.3%* | 32.1%* | 60.6% | 21.2%* | 18.2%* | 39.4% | 36.1% |
| GEORGETOWN | 95 | 68.2% | 15.9%* | 13.6%* | 29.5% | 64.7% | 27.5% | 3.9%* | 31.4% | 30.5% |
| GILL-MONTAGUE | 72 | 71.0% | 6.5% | 22.6% | 29.0% | 63.4% | 14.6% | 19.5%* | 34.1%* | 31.9% |
| GLOUCESTER | 227 | 63.8% | 11.8% | 22.8% | 34.6% | 59.0% | 19.0% | 20.0% | 39.0% | 36.6% |

| Grade 10 | Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|-------------------------|----------------------------------|---------------------------------------|--------------------|-----------------|-----------|--------------------------|--------------------|-----------------|-----------|--------------------------|--------------------------|
| | | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| GRANBY | 94 | 50.0% | 27.8% | 20.4% | 48.1% | 65.0% | 22.5%* | 12.5%* | 35.0% | 42.6% | |
| HADLEY | 41 | 61.1% | 11.1%* | 16.7%* | 27.8%* | 82.6% | 8.7%* | 8.7%* | 17.4%* | 22.0%* | |
| HAMPDEN WILBRAHAM | 301 | 58.8% | 21.2% | 18.2% | 39.4% | 74.3% | 14.7% | 10.3% | 25.0% | 32.9% | |
| HAMPSHIRE | 136 | 67.8% | 15.3%* | 13.6%* | 28.8% | 63.6% | 19.5% | 6.5%* | 26.0% | 27.2% | |
| HARWICH | 75 | 64.7% | 14.7%* | 20.6%* | 35.3% | 73.2% | 12.2% | 14.6%* | 26.8%* | 30.7% | |
| HAVERHILL | 462 | 54.8% | 18.8% | 24.3% | 43.1% | 57.8% | 18.8% | 21.5% | 40.4% | 41.8% | |
| LEOMINSTER | 348 | 64.2% | 17.3% | 17.9% | 35.2% | 68.3% | 13.4% | 17.2% | 30.6% | 32.8% | |
| LEXINGTON | 468 | 64.3% | 20.5% | 12.9% | 33.5% | 79.9% | 14.8% | 4.1% | 18.9% | 25.9% | |
| LUDLOW | 223 | 65.5% | 17.7% | 15.9% | 33.6% | 64.5% | 22.7% | 10.9% | 33.6% | 33.6% | |
| LYNN | 861 | 63.7% | 15.1% | 19.6% | 34.7% | 58.0% | 21.6% | 19.7% | 41.3% | 37.9% | |
| MANSFIELD | 388 | 63.3% | 15.8% | 15.8% | 31.6% | 74.0% | 13.3% | 9.2% | 22.5% | 27.6% | |
| MARBLEHEAD | 263 | 75.6% | 13.7% | 10.7% | 24.4% | 74.2% | 16.7% | 8.3% | 25.0% | 24.7% | |
| MARSHFIELD [‡] | 334 | 72.0% | 8.2% | 13.7% | 22.0% | 78.3% | 7.2% | 9.9% | 17.1% | 19.8% | |
| NASHOBA | 201 | 72.6% | 15.1% | 12.3% | 27.4% | 82.1% | 14.7% | 3.2%* | 17.9% | 22.9% | |
| NATICK | 250 | 69.3% | 12.1% | 17.1% | 29.3% | 72.7% | 18.2% | 9.1% | 27.3% | 28.4% | |
| NEEDHAM | 310 | 71.4% | 12.9% | 12.2% | 25.2% | 74.2% | 17.8% | 6.7% | 24.5% | 24.8% | |
| NEW BEDFORD | 513 | 67.4% | 15.5% | 13.8% | 29.3% | 75.1% | 12.0% | 11.5% | 23.4% | 26.9% | |
| NEWBURYPORT | 191 | 71.8% | 19.1% | 6.4%* | 25.5% | 66.7% | 21.0% | 11.1%* | 32.1% | 28.3% | |
| NEWTON | 768 | 74.0% | 13.1% | 10.6% | 23.8% | 80.8% | 9.1% | 7.1% | 16.2% | 20.2% | |
| NORTH ANDOVER | 309 | 57.6% | 27.3% | 13.7% | 41.0% | 68.8% | 17.1% | 13.5% | 30.6% | 35.3% | |
| NORTH ATTLEBOROUGH | 249 | 65.7% | 18.7% | 11.2% | 29.9% | 70.4% | 20.0% | 5.2%* | 25.2% | 27.7% | |
| NORTHAMPTON | 222 | 72.0% | 12.1% | 15.0% | 27.1% | 75.7% | 12.2% | 7.8%* | 20.0% | 23.4% | |
| NORTHBRIDGE | 158 | 52.2% | 20.7% | 26.1% | 46.7% | 59.1% | 15.2% | 25.8% | 40.9% | 44.3% | |
| PLYMOUTH | 708 | 60.9% | 20.0% | 18.5% | 38.5% | 64.9% | 18.8% | 15.8% | 34.5% | 36.4% | |
| PROVINCETOWN | 15 | 66.7%* | 16.7%* | 16.7%* | 33.3%* | 55.6%* | 22.2%* | 22.2%* | 44.4%* | 40.0%* | |
| QUINCY | 715 | 71.9% | 10.6% | 13.9% | 24.5% | 71.3% | 12.2% | 14.7% | 26.9% | 25.6% | |
| ROCKPORT | 76 | 69.4% | 16.7%* | 13.9%* | 30.6% | 72.5% | 17.5% | 10.0%* | 27.5%* | 28.9% | |

| Grade 10 | Essential School Health District | Total number of students screened (N) | Males | | | | Females | | | | Males and Females |
|----------|----------------------------------|---------------------------------------|--------------------|-----------------|--------------|--------------------------|--------------------|-----------------|--------------|--------------------------|--------------------------|
| | | | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Healthy Weight (%) | Over-weight (%) | Obese (%) | Over-weight or Obese (%) | Over-weight or Obese (%) |
| | SANDWICH | 264 | 83.3% | 6.1% | 8.3% | 14.4% | 78.0% | 9.1% | 9.8% | 18.9% | 16.7% |
| | STOUGHTON | 325 | 52.5% | 17.9% | 28.4% | 46.3% | 59.5% | 21.5% | 14.7% | 36.2% | 41.2% |
| | TAUNTON | 366 | 58.6% | 19.4% | 12.0% | 31.4% | 57.1% | 21.1% | 10.3% | 31.4% | 31.4% |
| | WALPOLE | 253 | 75.4% | 12.3% | 9.6% | 21.9% | 79.1% | 16.5% | 2.9%* | 19.4% | 20.6% |
| | WALTHAM | 349 | 63.0% | 21.4% | 14.3% | 35.7% | 56.4% | 19.0% | 24.1% | 43.1% | 39.8% |
| | WEST BRIDGEWATER | 73 | 59.5% | 24.3%* | 13.5%* | 37.8% | 61.1% | 22.2% | 16.7%* | 38.9%* | 38.4% |
| | WEYMOUTH | 488 | 58.9% | 24.0% | 15.6% | 39.6% | 54.5% | 31.0% | 13.6% | 44.6% | 41.8% |
| | WILMINGTON | 259 | 67.5% | 12.8% | 17.9% | 30.8% | 69.0% | 18.3% | 12.0% | 30.3% | 30.5% |
| | TOTAL | 18,237 | 65.4% | 16.3% | 16.0% | 32.3% | 69.3% | 16.7% | 12.0% | 28.6% | 30.5% |

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis. Definitions: *Underweight* – BMI for age percentile < 5th percentile; *Healthy weight* – BMI for age percentile between 5th and 85th percentile; *Overweight* – BMI for age percentile between 85th and 95th percentile; *Obese* – BMI for age percentile ≥ 95th percentile.

* Rate should be interpreted cautiously due to the small number of students in this category (< 10 students).

± Data for Boston, Billerica, and Marshfield is currently being verified.

Table 6. Underweight Children in Grades 1, 4, 7, 10 in Essential School Health Services Districts, 2008-2009

| Essential School Health District | Total number of students screened (N) | Percent Underweight | | |
|----------------------------------|--|---------------------|-------------|-----------------------|
| | | Males (%) | Females (%) | Males and Females (%) |
| ACTON-BOXBOROUGH | 1,666 | 2.0% | 2.5% | 2.3% |
| AMESBURY | 781 | 3.5% | 4.0% | 3.7% |
| ANDOVER | 1,771 | 1.3% | 1.4% | 1.4% |
| ARLINGTON | 1,379 | 1.6% | 2.1% | 1.9% |
| ASHBURNHAM-WESTMINSTER | 705 | 3.9% | 4.4% | 4.1% |
| ATTLEBORO | 825 | 3.1% | 2.7% | 2.9% |
| BARNSTABLE | 1,576 | 0.9%* | 1.1%* | 1.0% |
| BELCHERTOWN | 816 | 0.7%* | 1.0%* | 0.9%* |
| BERKSHIRE HILLS | 366 | 1.5% | 1.3% | 1.4%* |
| BILLERICA [±] | 1,879 | ± | ± | ± |
| BOSTON [±] | 9,841 | ± | ± | ± |
| BRAINTREE | 1,637 | 3.5% | 3.4% | 3.4% |
| BRIDGEWATER RAYNHAM | 1,803 | 1.8% | 1.7% | 1.8% |
| BROCKTON | 4,230 | 2.2% | 2.0% | 2.1% |
| BROOKLINE | 1,685 | 4.1% | 3.4% | 3.7% |
| CAMBRIDGE | 1,236 | 2.0% | 1.5%* | 1.8% |
| CANTON | 903 | 0.9%* | 2.6% | 1.8% |
| CENTRAL BERKSHIRE | 438 | 0.9%* | 0.9%* | 0.9%* |
| CHICOPEE | 2,139 | 0.6% | 1.3% | 0.9% |
| DOUGLAS | 487 | 2.3%* | 2.2%* | 2.3% |
| EAST LONGMEADOW | 851 | 2.0%* | 1.1%* | 1.5% |
| FALL RIVER | 2,957 | 1.9% | 1.3% | 1.6% |
| FITCHBURG | 1,417 | 2.5% | 2.7% | 2.6% |
| GARDNER | 750 | 3.6% | 2.5%* | 3.1% |
| GATEWAY | 141 | 1.6%* | 0.0%* | 0.7%* |
| GEORGETOWN | 461 | 2.9%* | 4.1%* | 3.5% |
| GILL-MONTAGUE | 308 | 3.9%* | 1.3%* | 2.6%* |

Underweight

| Essential School Health District | Total number of students screened (N) | Percent Underweight | | |
|----------------------------------|--|---------------------|---------|----------------------|
| | | Males | Females | Males and Females |
| | | (%) | (%) | (%) |
| GLOUCESTER | 915 | 2.4% | 3.3% | 2.8% |
| GRANBY | 339 | 2.2%* | 1.9%* | 2.1%* |
| HADLEY | 174 | 3.6%* | 0.0%* | 1.7%* |
| HAMPDEN WILBRAHAM | 1,065 | 2.3% | 2.8% | 2.5% |
| HAMPSHIRE | 406 | 2.2%* | 4.4% | 3.4% |
| HARWICH | 376 | 1.5%* | 1.7%* | 1.6%* |
| HAVERHILL | 2,113 | 2.0% | 1.5% | 1.8% |
| HOLYOKE | 1,063 | 2.9% | 1.7% | 2.4% |
| HUDSON | 601 | 0.4%* | 2.2%* | 1.3%* |
| LAWRENCE | 2,564 | 1.6% | 1.3% | 1.4% |
| LEOMINSTER | 1,823 | 1.2% | 2.4% | 1.8% |
| LEXINGTON | 1,862 | 3.4% | 2.5% | 3.0% |
| LOWELL | 2,995 | 3.6% | 3.0% | 3.3% |
| LUDLOW | 954 | 1.4%* | 1.1%* | 1.3% |
| LYNN | 2,572 | 2.6% | 3.8% | 3.2% |
| MANSFIELD | 1,484 | 5.3% | 5.1% | 5.2% |
| MARBLEHEAD | 1,029 | 1.1%* | 0.8%* | 1.0% |
| MARSHFIELD [±] | 1,406 | ± | ± | ± |
| MEDFORD | 967 | 1.9% | 1.8%* | 1.9% |
| MIDDLEBOROUGH | 824 | 1.6%* | 1.6%* | 1.6% |
| NASHOBA | 927 | 1.0%* | 0.7%* | 0.9%* |
| NATICK | 1,265 | 2.3% | 2.6% | 2.5% |
| NEEDHAM | 1,437 | 3.9% | 3.9% | 3.9% |
| NEW BEDFORD | 3,457 | 1.9% | 1.4% | 1.6% |
| NEWBURYPORT | 645 | 1.7%* | 2.7%* | 2.2% |
| NEWTON | 3,235 | 3.0% | 4.0% | 3.5% |
| NORTH ANDOVER | 1,320 | 1.1%* | 1.0%* | 1.1% |
| NORTH ATTLEBOROUGH | 973 | 2.4% | 3.5% | 3.0% |

Underweight

| Essential School Health District | Total number of students screened (N) | Percent Underweight | | |
|----------------------------------|--|---------------------|-------------|-------------------|
| | | Males | Females | Males and Females |
| | | (%) | (%) | (%) |
| NORTH BERKSHIRE UNION | 109 | 0.0%* | 3.1%* | 1.8%* |
| NORTHAMPTON | 798 | 1.5%* | 2.8% | 2.1% |
| NORTHBORO SOUTHBORO | 1,162 | 1.1%* | 1.3%* | 1.2% |
| NORTHBRIDGE | 353 | 1.0%* | 0.6%* | 0.8%* |
| PITTSFIELD | 318 | 0.0%* | 0.0%* | 0.0%* |
| PLYMOUTH | 2,610 | 1.8% | 1.4% | 1.6% |
| PROVINCETOWN | 44 | 0.0%* | 0.0%* | 0.0%* |
| QUINCY | 2,432 | 2.9% | 1.6% | 2.3% |
| ROCKPORT | 295 | 0.6%* | 1.4%* | 1.0%* |
| SANDWICH | 1,091 | 1.6%* | 2.5% | 2.0% |
| SCITUATE | 694 | 3.4% | 3.5% | 3.5% |
| SPRINGFIELD | 4,964 | 2.2% | 2.0% | 2.1% |
| STOUGHTON | 1,198 | 1.7% | 3.0% | 2.3% |
| TAUNTON | 2,515 | 2.8% | 2.1% | 2.5% |
| WALPOLE | 1,145 | 1.4%* | 2.1% | 1.7% |
| WALTHAM | 1,385 | 1.0%* | 0.7%* | 0.9% |
| WEST BRIDGEWATER | 344 | 2.8%* | 0.0%* | 1.5%* |
| WESTON | 539 | 2.6% | 2.3% | 2.4% |
| WEYMOUTH | 1,860 | 2.2%* | 1.7%* | 2.0% |
| WILMINGTON | 1,173 | 1.7% | 4.7% | 3.2% |
| WORCESTER | 2,806 | 4.9% | 6.2% | 5.5% |
| TOTAL | 109,674 | 2.4% | 2.5% | 2.5% |

Note: Data that did not pass data quality tests or did not meet the reporting criteria (that 70% of students in a grade level should be screened) were excluded from the analysis.

Definitions: *Underweight* – BMI for age percentile < 5th percentile. *Healthy weight* – BMI for age percentile between 5th and 85th percentile.

Overweight – BMI for age percentile between 85th and 95th percentile. *Obese* – BMI for age percentile ≥ 95th percentile.

* Rate should be interpreted cautiously due to the small number of students in this category (< 10 students).

± Data for Boston, Billerica, and Marshfield are currently being verified.

Figures 1 – 4. Body Mass Index (BMI) and Weight Categories for Grades 1, 4, 7, 10 by Gender for Essential School Health Districts, 2008-2009

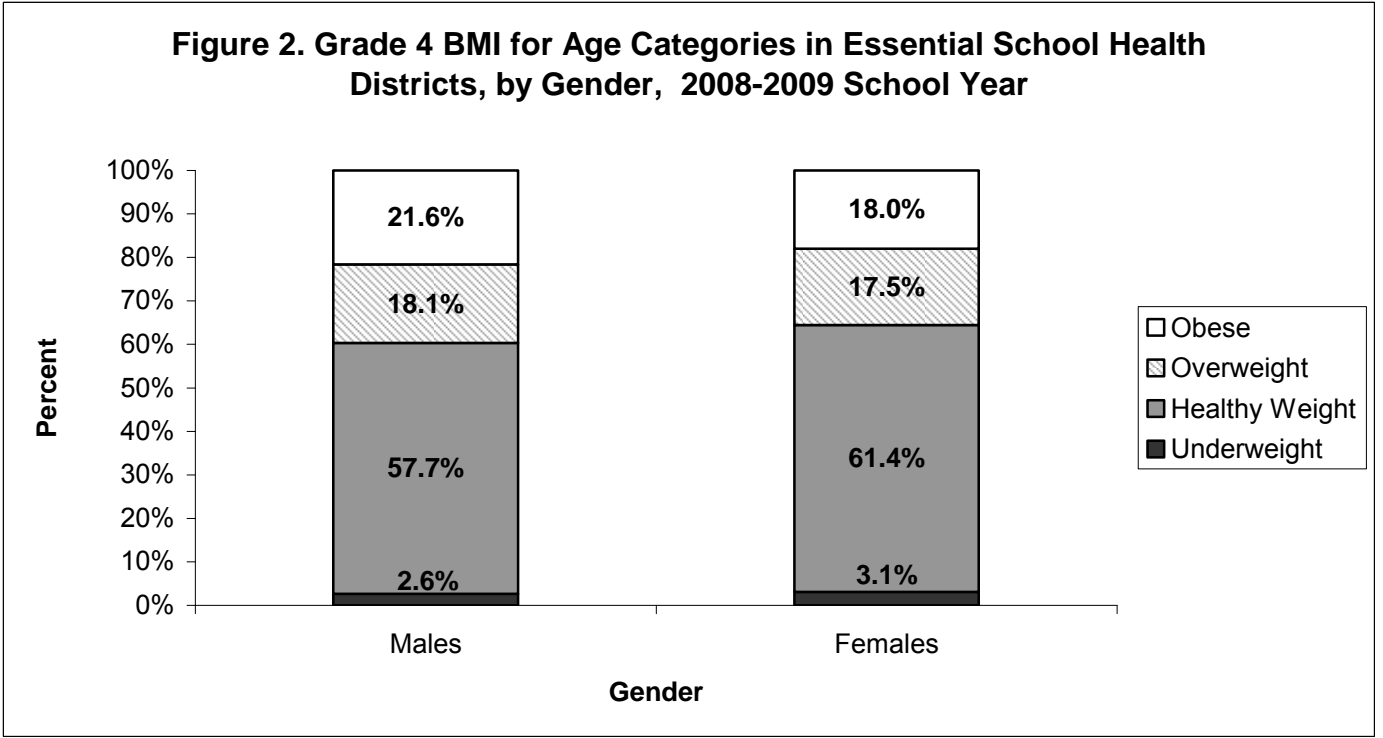
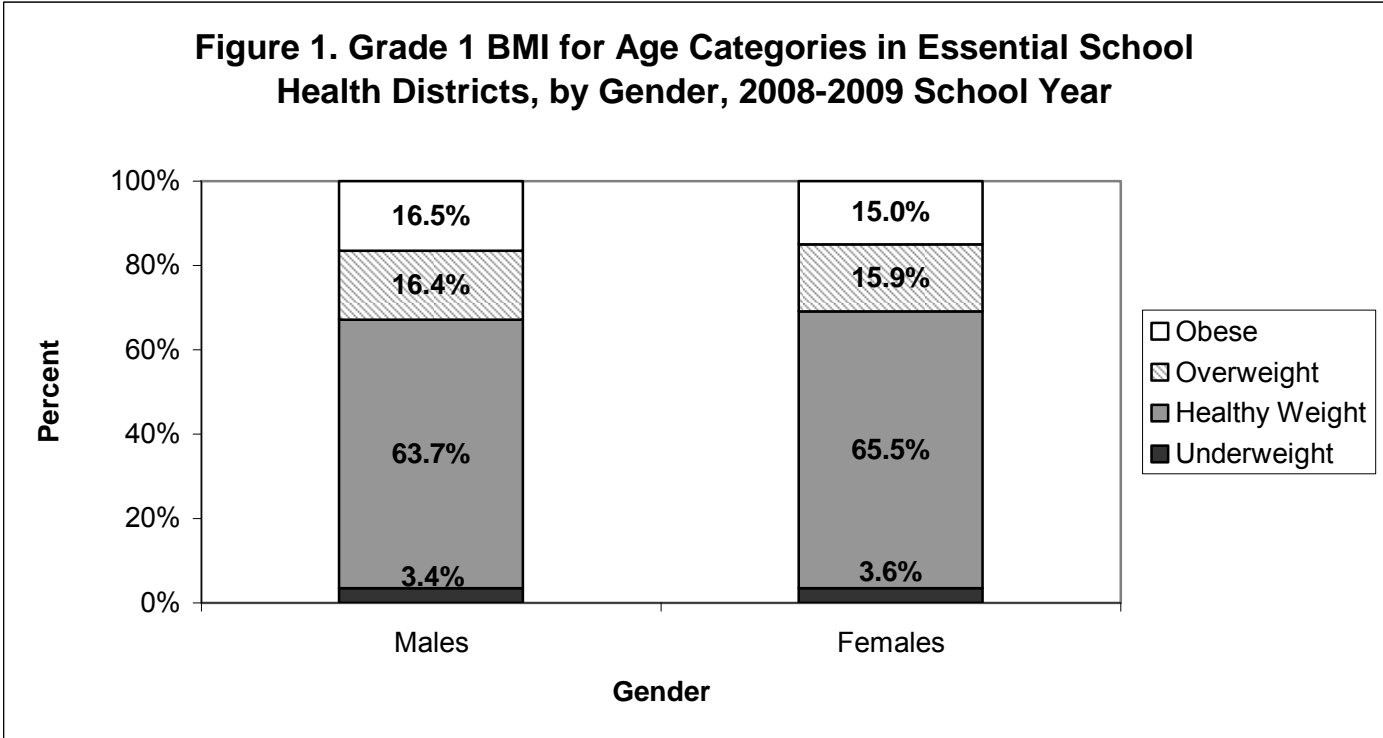


Figure 3. Grade 7 BMI for Age Categories in Essential School Health Districts, by Gender, 2008-2009 School Year

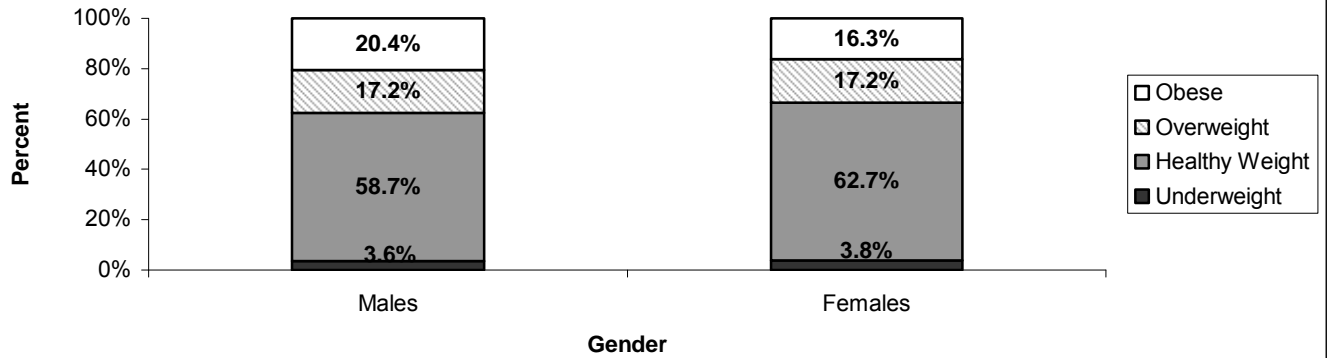
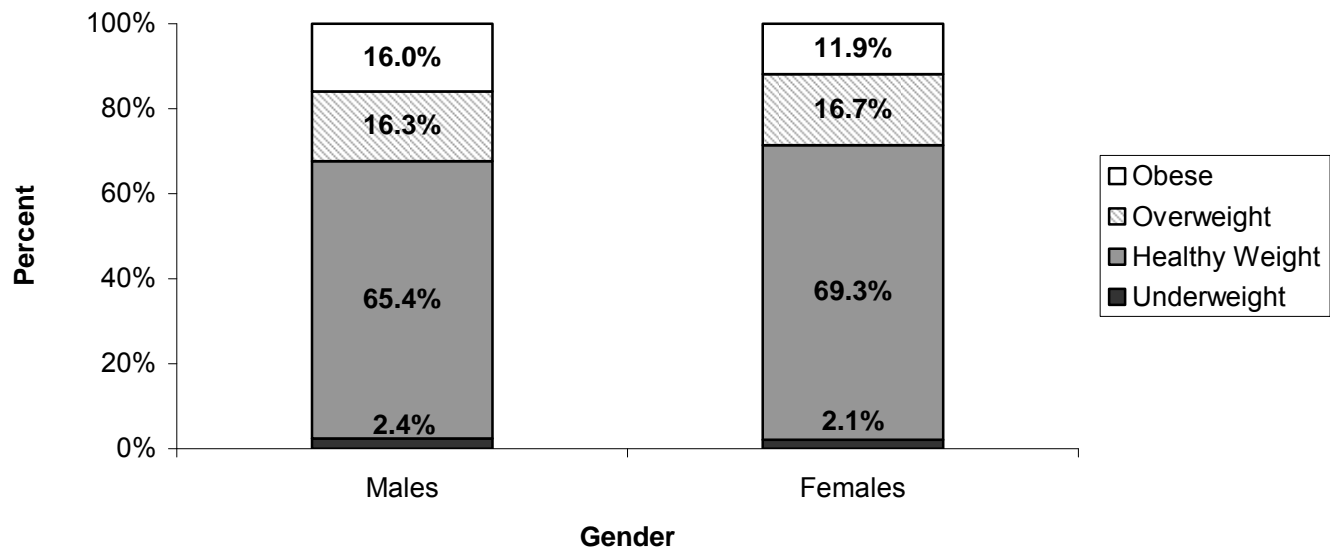


Figure 4. Grade 10 BMI for Age Category in Essential School Health Districts, by Gender, 2008-2009 School Year



Figures 5 – 9. Healthy Weight, Overweight, Obese and Underweight Students in Grades 1, 4, 7, 10 by Gender in Essential School Health Districts, 2008-2009

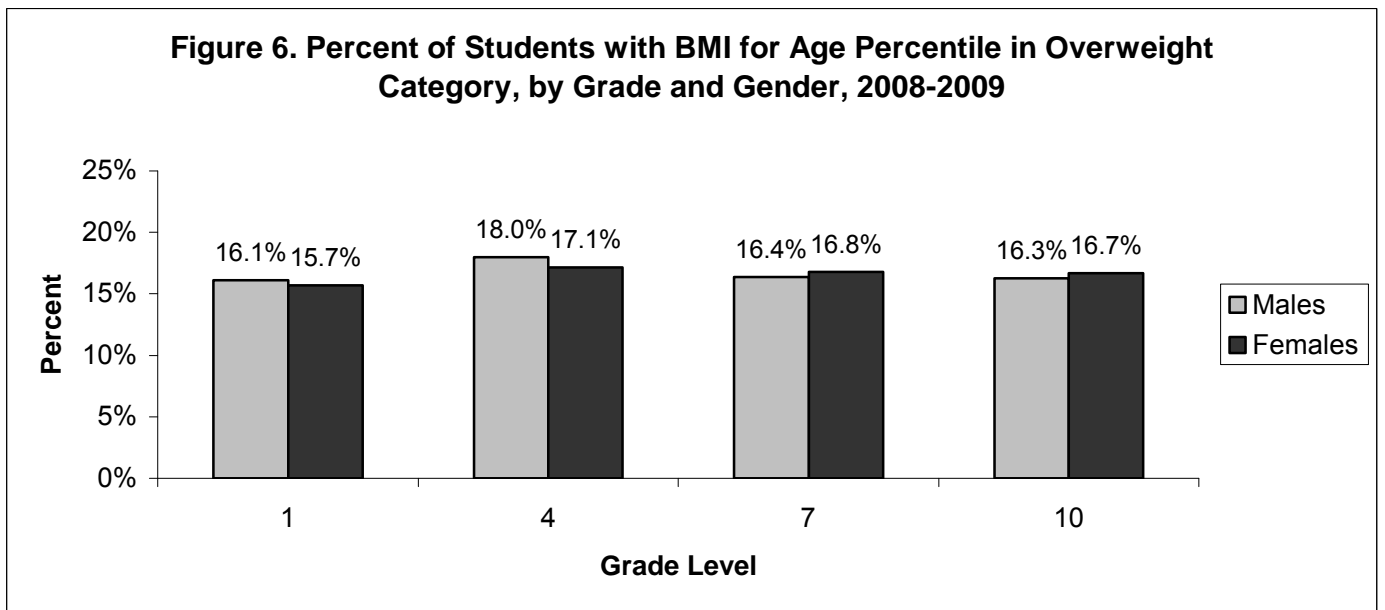
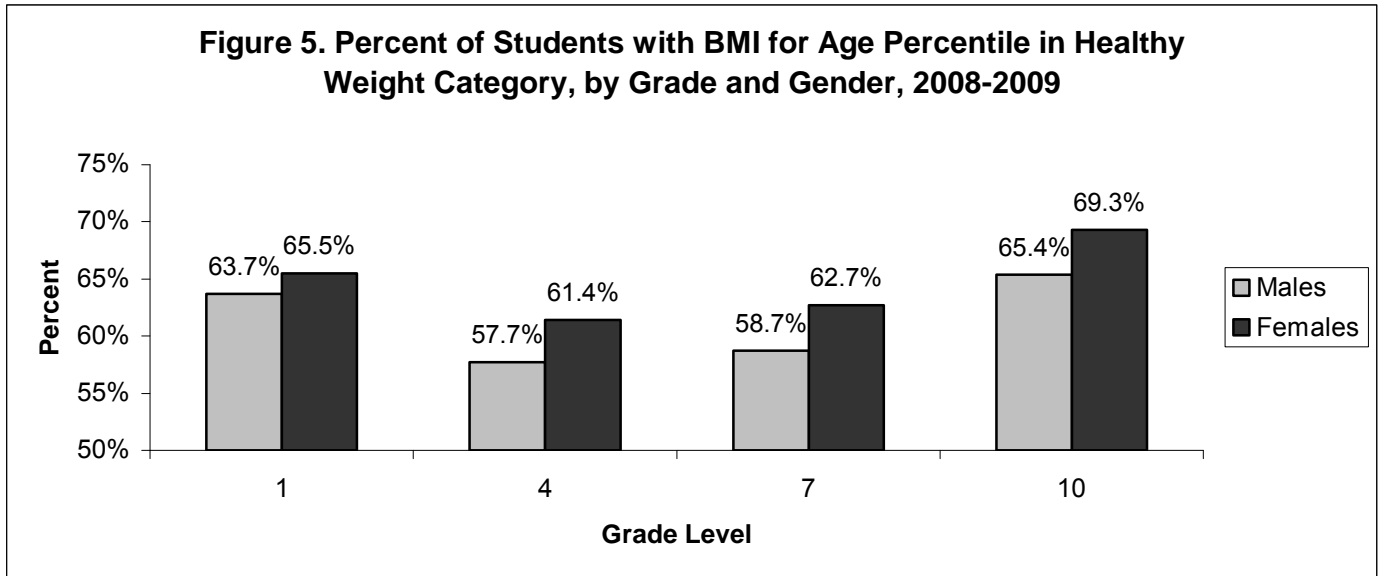


Figure 7. Percent of Students with BMI for Age Percentile in Obese Category by Grade and Gender, 2008-2009

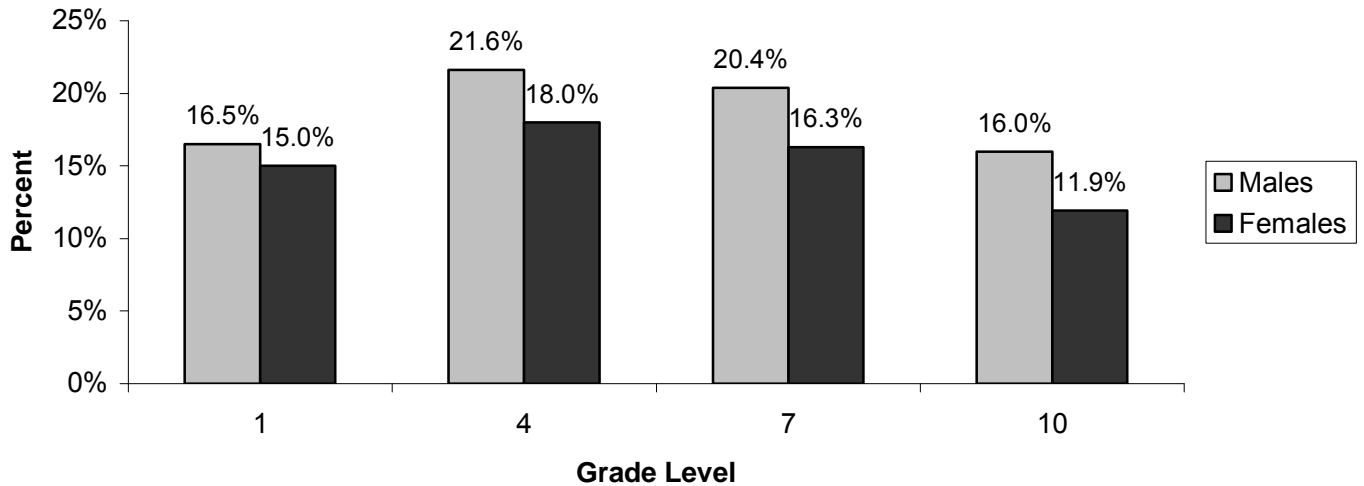


Figure 8. Percent of Students with BMI for Age Percentile in Overweight or Obese Category by Grade and Gender, 2008-2009

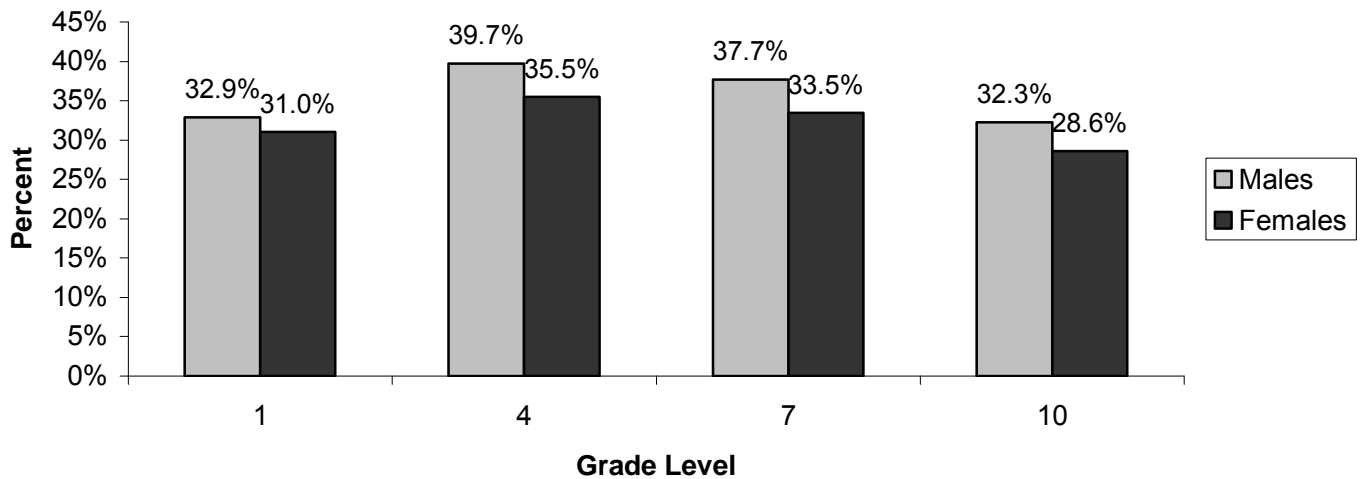


Figure 9. Percent of Students with BMI for Age Percentile in Underweight Category, by Grade and Gender, 2008-2009

