

7. Chronic Disease, Asthma Risk and Hospitalization Appendix Data Tables

This chapter presents data on the following indicators related to chronic disease and asthma:

7.1. Diabetes Hospitalizations

- Age adjusted hospitalization rate (1999-2001, 2007-2009)
- Age adjusted diabetes related hospitalization rate (1999-2001, 2007-2009)
- Age adjusted diabetes complications hospitalization rate (1999-2001, 2007-2009)

7.2. Obesity

- Adult prevalence of overweight and obesity (1999-2001, 2008-2010)
- Age adjusted obesity related hospitalization rate (1999-2001, 2007-2009)
- Child prevalence of overweight and obesity - 1st grade, 4th grade, 7th grade, 10th grade (2010)

7.3. Exercise and nutrition

- % sufficient fruit and vegetable intake (1999-2001, 2008-2010)
- % participate in regular physical activity

7.4. Children with Asthma

- Number of asthmatics (2007-2008)
- Prevalence (2007-2008)

7.5. Asthma Hospitalizations

- Number of hospitalizations (2006-2008)
- Standardized hospitalization ratio (2006-2008)
- % pediatric (2006-2008)

7.6. Elevated Blood Lead level Cases in Children

- Number of cases (1999-2001, 2008-2010)
- % of children screened (1999-2001, 2008-2010)

Presented for each indicator is an explanation of the indicator, the data, the source of the data, a Healthy People 2020 objective when available, and a comment on whether there are any statistically significant differences between each community in CHNA 18 and Massachusetts.

A note on determining statistical significance:

The 95% confidence interval (95% CI) is a range of values that has a 95% chance of including the observed percentage. Observed rates are subject to statistical variation; even if the observed percentages are identical in two populations, the populations may differ because of random variation. The confidence interval describes the precision of the observed rate as an estimate of the underlying risk, with a wider interval indicating less certainty about this estimate. The width of the interval reflects the size of the population and the number of cases; smaller populations with fewer cases lead to wider confidence intervals.

The **statistical significance** of differences between rates can be estimated based on whether the confidence intervals overlap. For example, if the 95% confidence intervals for the birth rate for a community and state do not overlap, it is safe to conclude that the rates are statistically different (i.e., the difference is very unlikely to be due to sampling error).

7.1 Diabetes Hospitalizations

Diabetes Hospitalizations Age Adjusted Rate: The hospitalization rate is the number of hospitalizations where diabetes was primary diagnosis per 100,000 persons. Age adjustment is a statistical method that takes into account age-distribution differences between populations by taking the 2000 US population distribution and applying it to the other time periods under consideration. This assures that changes in the hospitalization rate are not merely reflections of any changes in the population age distribution.

Diabetes Related Hospitalizations Age Adjusted Rate: This is the same interpretation as the diabetes hospitalization age adjusted rate, except this captures the age adjusted number of hospitalizations where the primary diagnosis was diabetes related, per 100,000 persons

Diabetes Complications Hospitalizations Age Adjusted Rate: This is the same interpretation as the diabetes hospitalization age adjusted rate, except this captures the age adjusted number of hospitalizations where the primary diagnosis was diabetes complications, per 100,000 persons

	Age Adjusted Rate (95% CI)	
	1999-2001	2007-2009
Brookline	76.23 (62.73 - 89.72)	72.92 (59.66 - 86.18)
Dedham	90.90 (69.90 - 111.91)	93.74 (73.10 - 114.38)
Dover	NA*	NA*
Needham	68.53 (52.50 - 84.55)	67.63 (51.22 - 84.03)
Newton	73.39 (63.43 - 83.35)	56.74 (47.98 - 65.49)
Waltham	133.03 (115.82 - 150.24)	110.30 (95.08 - 125.52)
Wellesley	63.56 (46.56 - 80.57)	49.03 (33.98 - 64.07)
Weston	56.66 (29.32 - 84.01)	51.44 (29.95 - 72.93)
Westwood	62.24 (40.85 - 83.63)	82.93 (54.20 - 111.66)
CHNA 18	81.81 (76.22 - 87.40)	72.47 (67.25 - 77.69)
Massachusetts	121.87 (120.32 - 123.41)	135.45 (133.85 - 137.04)
United States**	197.67	205

*Cells are marked as NA when either: 1) Data are suppressed for confidentiality reasons, 2) The data is unavailable, or 3) The population on which the statistic is based on is too small to calculate reliable results

**Hospital Discharge Rate for Diabetes as first diagnosis

Source: Uniform Hospital Discharge Dataset System (UHDDS) (MassCHIP Custom Report); CDC Diabetes Data & Trends

Diabetes Related Hospitalizations Age Adjusted Rate (95% CI)		
	1999-2001	2007-2009
Brookline	1082.77 (1034.94 - 1130.60)	1277.55 (1225.18 - 1329.91)
Dedham	1499.33 (1420.42 - 1578.25)	1887.39 (1801.70 - 1973.09)
Dover	388.39 (291.86 - 484.92)	665.72 (525.20 - 806.25)
Needham	1029.25 (970.12 - 1088.38)	1313.96 (1248.23 - 1379.68)
Newton	1055.30 (1018.99 - 1091.62)	1092.80 (1056.60 - 1128.99)
Waltham	1823.22 (1763.02 - 1883.43)	1759.97 (1701.71 - 1818.24)
Wellesley	867.58 (805.96 - 929.19)	792.14 (733.83 - 850.45)
Weston	973.39 (883.44 - 1063.34)	893.07 (801.39 - 984.76)
Westwood	939.80 (862.73 - 1016.87)	1130.50 (1042.41 - 1218.60)
CHNA 18	1185.96 (1165.75 - 1206.18)	1286.29 (1265.46 - 1307.13)
Massachusetts	1599.27 (1593.89 - 1604.64)	1982.27 (1976.50 - 1988.04)
United States**	1588.67	1679.33

**Hospital Discharge Rate for Diabetes as any listed diagnosis

Source: Uniform Hospital Discharge Dataset System (UHDDS) (MassCHIP Custom Report); CDC Diabetes Data & Trends

Diabetes Complications Hospitalizations Age Adjusted Rate (95% CI)		
	1999-2001	2007-2009
Brookline	142.75 (124.77 - 160.72)	363.76 (335.41 - 392.11)
Dedham	212.71 (181.65 - 243.78)	425.00 (383.63 - 466.36)
Dover	47.04 (11.35 - 82.73)	196.04 (104.42 - 287.65)
Needham	176.49 (151.46 - 201.53)	361.87 (327.39 - 396.35)
Newton	132.58 (119.23 - 145.93)	286.93 (268.07 - 305.79)
Waltham	248.40 (225.07 - 271.73)	422.15 (392.92 - 451.38)
Wellesley	120.93 (96.78 - 145.08)	183.21 (154.50 - 211.93)
Weston	147.33 (110.66 - 184.01)	234.66 (190.85 - 278.48)
Westwood	115.54 (87.49 - 143.59)	265.66 (222.15 - 309.17)
CHNA 18	162.33 (154.57 - 170.09)	327.03 (316.39 - 337.67)
Massachusetts	233.26 (231.14 - 235.37)	483.12 (480.17 - 486.06)

Source: Uniform Hospital Discharge Dataset System (UHDDS) (MassCHIP Custom Report)

Comment:

Are there any statistically significant differences over time or between the CHNA and Massachusetts?

- Diabetes hospitalizations
 - From 1999-2001 to 2007-2009, each community and CHNA 18 had similar age adjusted rates of diabetes hospitalizations. Massachusetts did experience an increase over this time
 - In 2007-2009, compared to CHNA 18, Newton and Wellesley had lower age adjusted rates of diabetes hospitalizations, while Waltham had a higher rate
 - In 2007-2009, compared to Massachusetts, CHNA 18 and every community had lower age adjusted rates of diabetes hospitalizations
- Diabetes related hospitalizations
 - From 1999-2001 to 2007-2009, Brookline, Dedham, Dover, Needham, Westwood, CHNA 18 as a whole, and Massachusetts saw an increase in the age adjusted rates of diabetes related hospitalizations
 - In 2007-2009, compared to CHNA 18, Dedham and Waltham had higher age adjusted rates of diabetes related hospitalizations, while Dover, Newton, Wellesley, Weston, and Westwood had lower rates
 - In 2007-2009, compared to Massachusetts, CHNA 18 and every community had lower age adjusted rates of diabetes related hospitalizations
- Diabetes complications hospitalizations
 - From 1999-2001 to 2007-2009, each community, CHNA 18 as a whole, and Massachusetts had an increase in age adjusted rates of hospitalizations due to diabetes complications
 - In 2007-2009, compared to CHNA 18, Dedham and Waltham had higher age adjusted rates of hospitalizations due to diabetes complications, while Dover, Newton, Wellesley, Weston, and Westwood had lower rates
 - In 2007-2009, compared to Massachusetts, CHNA 18 and every community had lower age adjusted rates of hospitalizations due to diabetes complications

7.2 Obesity

% Overweight and Obese: This is the percent of respondents aged 18 and older who reported a Body Mass Index over 25.

% Obese: This is the percent of respondents aged 18 and older who reported a Body Mass Index over 30.

Healthy People 2020 objective: Reduce the percent of adults who are considered obese to 30.6%

Adult Overweight and Obesity*

	% Overweight and Obese (95% CI)		% Obese (95% CI)	
	1999-2001	2008-2010	1999-2001	2008-2010
CHNA 18	45.8 (41.3 - 50.4)	50.1 (46.4 - 53.8)	13.8 (10.4 - 17.1)	13.9 (11.2 - 16.5)
Massachusetts	52.2 (51.3 - 53.0)	58.6 (57.8 - 59.3)	15.7 (15.1 - 16.3)	22.3 (21.7 - 22.9)
United States**	64.5 (61.4 - 67.6)	68.3 (66.6 - 70.0)	30.5	33.9 (31.7 - 36.1)

*Data for the CHNA does not include Brookline because the custom report did not allow the addition of Brookline

**Data for 1999-2000 and 2007-2008 only

Source: BRFSS (MassCHIP Custom Report); JAMA 295:13; JAMA 303:3

Comment:

Are there any statistically significant differences over time or between the CHNA and Massachusetts?

- The percent of Massachusetts residents who reported being overweight or obese increased from 1999-2001 to 2008-2010, but this increase was not seen in CHNA 18
- CHNA 18 has a fewer percent of adults who reported being overweight or obese compared to Massachusetts

Obesity-Related Hospitalizations

Age-Adjusted Rate: The hospitalization rate is the number of hospitalizations related to obesity per 100,000 persons. Age adjustment is a statistical method that takes into account age-distribution differences between populations by taking the 2000 US population distribution and applying it to the other time periods under consideration. This assures that changes in the hospitalization rate are not merely reflections of any changes in the population age distribution.

	Age Adjusted Rate (95% CI)	
	1999-2001	2007-2009
Brookline	11.23 (6.32 - 16.13)	26.64 (18.97 - 34.31)
Dedham	13.66 (5.19 - 22.14)	86.38 (64.54 - 108.22)
Dover	NA**	NA**
Needham	15.03 (6.22 - 23.84)	43.47 (27.66 - 59.28)
Newton	16.14 (11.27 - 21.01)	33.38 (26.26 - 40.51)
Waltham	27.03 (19.31 - 34.75)	44.23 (34.58 - 53.88)
Wellesley	NA**	26.66 (13.12 - 40.20)
Weston	NA**	NA**
Westwood	NA**	54.53 (26.55 - 82.51)
CHNA 18	15.53 (13.04 - 18.01)	37.00 (33.16 - 40.85)
Massachusetts	17.25 (16.67 - 17.83)	58.78 (57.72 - 59.85)

**Cells are marked as NA when either: 1) Data are suppressed for confidentiality reasons, 2) The data is unavailable, or 3) The population on which the statistic is based on is too small to calculate reliable results

Source: Uniform Hospital Discharge Dataset System (UHDDS) (MassCHIP Custom Report)

Comment:

Are there any statistically significant differences over time or between the CHNA and Massachusetts?

- From 1999-2001 to 2007-2009, the obesity hospitalization age-adjusted rate has increased in Brookline, Dedham, Needham, Newton, CHNA 18 and Massachusetts
- In 2007-2009, CHNA had a lower obesity hospitalization rate compared to Massachusetts

Child/Adolescent Overweight and Obesity, 2010*

% Overweight: Body Mass Index is used to judge whether an individual's weight is appropriate for their height. BMI calculation in children considers gender, age, height, and weight. This is the percent of individuals with a Body Mass Index greater than or equal to the 85th percentile and less than the 95th percentile.

% Obese: This is the percent of individuals with a Body Mass Index equal to or greater than the 95th percentile

Healthy People 2020 objective: Reduce the percent of children and adolescents who are considered obese to 14.6%. Additionally achieve the following reductions in each age group:

- 9.6% of children ages 2 to 5 years old
- 15.7% of children ages 6 to 11 years old
- 16.1% of children ages 12 to 19 years old

		% Overweight (95% CI)	% Obese (95% CI)
Brookline	1 st Grade	9.3 (6.9 - 11.8)	4.4 (2.7 - 6.1)
	4 th Grade	12.6 (9.8 - 15.5)	7.7 (5.5 - 10.0)
	7 th Grade	9.1 (6.4 - 11.8)	5.1 (3.0 - 7.2)
	10 th Grade	16.7 (12.7 - 20.6)	5.8 (3.4 - 8.3)
	Overall	11.6 (10.1 - 13.0)	5.8 (4.7 - 6.9)
Needham	1 st Grade	4.6 (2.6 - 6.7)	2.9 (1.3 - 4.5)
	4 th Grade	12.2 (9.1 - 15.3)	6.1 (3.8 - 8.4)
	7 th Grade	10.7 (7.7 - 13.7)	6.7 (4.3 - 9.1)
	10 th Grade	14.7 (11.1 - 18.4)	6.9 (4.3 - 9.6)
	Overall	10.4 (8.9 - 11.9)	5.6 (4.5 - 6.8)
Newton	1 st Grade	10.0 (7.9 - 12.0)	5.3 (3.7 - 6.9)
	4 th Grade	11.2 (9.1 - 13.3)	6.0 (4.4 - 7.6)
	7 th Grade	12.8 (10.4 - 15.1)	5.8 (4.1 - 7.4)
	10 th Grade	10.6 (8.2 - 13.0)	7.2 (5.2 - 9.2)
	Overall	11.1 (10.0 - 12.3)	6.0 (5.2 - 6.9)
Waltham	1 st Grade	20.2 (16.0 - 24.5)	20.8 (16.5 - 25.1)
	4 th Grade	21.4 (16.8 - 25.9)	23.9 (19.2 - 28.7)
	7 th Grade	18.6 (14.4 - 22.9)	20.5 (16.1 - 24.9)
	10 th Grade	18.8 (14.4 - 23.2)	22.1 (17.4 - 26.8)
	Overall	19.8 (17.6 - 21.9)	21.8 (19.5 - 24.1)

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Weston	1 st Grade	8.6 (4.3 - 13.0)	6.8 (2.9 - 10.7)
	4 th Grade	14.3 (8.9 - 19.7)	6.2 (2.5 - 9.9)
	7 th Grade	15.7 (10.4 - 20.9)	6.5 (2.9 - 10.0)
	10 th Grade	14.7 (8.2 - 21.1)	5.2 (1.1 - 9.2)
	Overall	13.3 (10.6 - 16.0)	6.3 (4.4 - 8.1)
Massachusetts	1 st Grade	15.5 (15.2 - 15.8)	14.3 (14.0 - 14.7)
	4 th Grade	18.0 (17.7 - 18.4)	17.8 (17.4 - 18.2)
	7 th Grade	17.7 (17.3 - 18.1)	17.8 (17.4 - 18.2)
	10 th Grade	17.3 (16.9 - 17.7)	15.2 (14.8 - 15.5)
	Overall	17.1 (16.9 - 17.3)	16.3 (16.1 - 16.5)

*Data for Dedham, Dover, Wellesley, and Westwood unavailable

Source: Essential School Health Services (MassCHIP Instant Topic)

Comment:

Are there any statistically significant differences between each community and Massachusetts?

- Waltham has a higher percent of children who are either overweight or obese compared to Massachusetts

7.3 Exercise and nutrition*

% sufficient fruit and vegetable intake: All respondents (ages 18 and over) were asked about their consumption of fruits and vegetables. This included fruit juice, fruit, green salad, carrots, potatoes, and other vegetables. Presented here is the percentage of respondents who consumed five or more servings of fruits or vegetables per day.

% participates in regular physical activity: All respondents were asked if they had participated in either moderate (activity that causes some increase in breathing and heart rate) or vigorous (activity that causes large increases in breathing or heart rate) physical activities. Adults who participated in 30 minutes of moderate physical activity 5 days per week or 20 minutes of vigorous activity 3 days per week were said to have engaged in regular physical activity.

Healthy People 2020 Objective: Increase the percent of adults who engage in aerobic physical activity of at least moderate intensity for at least 150 minutes per week to 47.9%

	% sufficient fruit and vegetable intake (95% CI)	
	1999-2001	2008-2010
CHNA 18	33.3 (26.9 - 39.8)	30.4 (24.6 - 36.3)
Massachusetts	30.0 (28.8 - 31.2)	26.2 (25.0 - 27.4)

	% participates in regular physical activity (95% CI)	
	1999-2001	2008-2010
CHNA 18	51.0 (43.4 - 58.5)	52.0 (45.4 - 58.5)
Massachusetts	51.4 (50.1 - 52.7)	53.0 (51.6 - 54.4)
United States	45.3**	43.5**

*Data for the CHNA does not include Brookline because the custom report did not allow the addition of Brookline

**Date for 2001 and 2008 only

Source: BRFSS (MassCHIP Custom Report); MMWR 54(47); Am J Prev Med. Oct 2010, 39(4): 305-13

Comment:

Are there any statistically significant differences over time or between the CHNA and Massachusetts?

- The percent of adults reported eating 5 or more fruits or vegetables a day declined in Massachusetts between 1999-2001 and 2008-2010, but this decrease was not seen in CHNA 18

7.4 Children with asthma

Number of Asthmatics: This is the number of children with asthma enrolled in public school in Kindergarten through 8th grade

Prevalence: This is the percent of children with asthma enrolled public school in Kindergarten through 8th grade. Prevalence is not age-adjusted. When comparing prevalence estimates across communities, keep in mind that some of the observed differences in prevalence estimates may be due to differences in the age distribution of students in each community.

	Number of Asthmatics	Prevalence (% with 95% CI)
	2007-2008	2007-2008
Brookline	465	10.4 (9.6 - 11.3)
Dedham	301	12.5 (11.2 - 13.8)
Dover	79	7.6 (6.0 - 9.2)
Needham	432	10.3 (9.3 - 11.2)
Newton	878	9.5 (8.9 - 10.1)
Waltham	323	8.7 (7.8 - 9.7)
Wellesley	432	10.5 (9.6 - 11.5)
Weston	113	6.3 (5.2 - 7.4)
Westwood	220	9.5 (8.3 - 10.7)
CHNA 18	3,243	9.81 (9.49 - 10.13)
Massachusetts	NA	10.8 (10.8 - 10.9)

Source: Bureau of Environmental Health, Environmental Public Health Tracking

Comment:

Are there any statistically significant differences between each community and the CHNA and Massachusetts?

- Compared to Massachusetts and CHNA 18, Dedham has a higher prevalence of asthmatics enrolled in Kindergarten through 8th grade
- Compared to Massachusetts, Dover, Newton, Waltham, Weston, and Westwood have a lower prevalence of asthmatics enrolled in Kindergarten through 8th grade

Compared to CHNA 18, Dover, and Weston have a lower prevalence of asthmatics enrolled in Kindergarten through 8th grade

7.5 Asthma Hospitalizations

Standardized Hospitalization Ratio (SHR): The ratio of the number of hospitalizations observed in a population to the number that would be expected if the population had the same age-specific rates as the standard population, multiplied by 100. The standard population used here is Massachusetts. [Note that the standardized ratio is not meaningful for the entire state; by definition the result is always 100.] A standardized ratio of more than 100 indicates that a community's mortality rate is higher than expected compared to the statewide average. A standardized ratio of less than 100 indicates a less than expected mortality rate compared to Massachusetts.

% Pediatric: This is the percent of hospitalizations due to asthma that occurred in children between the ages of 0 and 15 years old

2006-2008			
	# of Hospitalizations	Standardized Hospitalization Ratio (95% CI)	% Pediatric (95% CI)
Brookline	409	42.00 (38.03 - 46.27)	40.59 (35.83 - 45.35)
Dedham	320	82.72 (73.91 - 92.30)	39.38 (34.02 - 44.73)
Dover	18	18.85 (11.17 - 29.78)	44.44 (21.49 - 67.40)
Needham	172	37.08 (31.74 - 43.05)	34.30 (27.21 - 41.40)
Newton	509	37.25 (34.08 - 40.63)	40.28 (36.01 - 44.54)
Waltham	525	51.03 (46.76 - 55.59)	30.29 (26.36 - 34.22)
Wellesley	136	29.47 (24.73 - 34.86)	48.53 (40.13 - 56.93)
Weston	39	20.88 (14.85 - 28.54)	41.03 (25.59 - 56.46)
Westwood	83	36.79 (29.30 - 45.61)	39.76 (29.23 - 50.29)
CHNA 18	2,211	42.61 (40.85 - 44.42)	37.90 (35.88 - 39.92)
Massachusetts	110,252	100.00 (100.00 - 100.00)	30.24 (29.97 - 30.51)

Source: Hospital Emergency Visits (MassCHIP Custom Report)

Comment:

Are there any statistically significant differences between each community and the CHNA and Massachusetts?

- Every community has a lower SHR when compared to Massachusetts, but when compared to CHNA 18, Dedham and Waltham have a higher observed rate of hospitalizations, while Dover, Newton, Wellesley, and Weston have a lower rate of observed hospitalizations
- Compared to CHNA 18, Wellesley has a higher percent of hospitalizations occurring children between the ages of 0 and 15.
- Compared to Massachusetts, CHNA 18 as a whole, and Brookline, Dedham, Newton, and Wellesley have a higher percent of asthma hospitalizations occurring in children between the ages of 0 and 15

7.6 Elevated Blood Level Cases in Children

Number of cases: This is the number of children who were screened for elevated blood lead that had blood lead levels $\geq 15 \mu\text{g/dL}$

% of children screened: This is the percent of children who were screened that had elevated blood lead $\geq 15 \mu\text{g/dL}$

Healthy People 2020 Objective: Eliminate blood lead levels in children

	Number of Cases		% of children screened (95% CI)	
	1999-2001	2008-2010	1999-2001	2008-2010
Brookline	11	2	2.60 (1.06 - 4.13)	0.42 (0.00 - 1.00)
Dedham	6	0	2.26 (0.45 - 4.07)	NA
Dover	0	0	NA	NA
Needham	1	0	0.28 (0.00 - 0.83)	NA
Newton	20	8	2.22 (1.25 - 3.18)	0.97 (0.30 - 1.63)
Waltham	16	6	3.42 (1.75 - 5.10)	1.18 (0.24 - 2.12)
Wellesley	2	0	0.55 (0.00 - 1.30)	NA
Weston	4	1	2.80 (0.06 - 5.54)	1.29 (0.00 - 3.80)
Westwood	1	1	0.49 (0.00 - 1.45)	0.78 (0.00 - 2.30)
CHNA 18	61	18	1.90 (1.43 - 2.38)	0.63 (0.34 - 0.93)
Massachusetts	2,965	939	4.10 (3.95 - 4.25)	1.38 (1.30 - 1.47)

Source: Lead Poisoning Prevention Program (CLPPP) (MassCHIP Custom Report)

Comment:

Are there any statistically significant differences over time or between the CHNA and Massachusetts?

- From 1999-2001 to 2008-2010, the percent of children screened who had elevated blood lead levels decreased in both CHNA 18 and Massachusetts.
- In 2008-2010, CHNA 18 had a lower percentage of children with elevated blood lead levels compared to Massachusetts