



# A Profile of Health in MetroWest: Results of the Behavioral Risk Factor Surveillance Survey, 2007-2009

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Analysis and opinions expressed are solely those of the author.

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## EXECUTIVE SUMMARY

The Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) Survey is a telephone survey conducted locally and nationally each year. During the three annual surveys conducted 2007-2009, 58,797 respondents were interviewed in Massachusetts, 2,447 of them from the MetroWest region. The BRFSS contained many questions pertaining to categories of perceived health, access to and utilization of primary care opportunities, behavioral risk factors, chronic diseases and conditions, and injuries and limitations. The results are presented in this report, along with selected comparisons, and, where possible and applicable, historical trends.

### Principal Findings

- MetroWest residents present a lower risk profile than do Massachusetts residents, on average, but a higher risk profile than Massachusetts' best benchmarks.
- MetroWest has a long way to go to meet several of the Healthy People 2010 objectives, including:
  - pneumonia and flu vaccination for those 65 and over;
  - high cholesterol levels, high blood pressure and diabetes
- MetroWest lags Massachusetts' *best* benchmarks in areas such as:
  - overall health;
  - insurance;
  - Pap smear and blood stool tests;
  - pneumonia vaccination;
  - overweight and obesity;
  - smoking;
  - binge and heavy drinking;
  - high blood pressure and high cholesterol levels;
  - asthma;
  - heart disease;
  - arthritis;
  - disability;
  - unintentional falls;
  - women experiencing sexual violence
- Where the small number of Black and Hispanic interviewees permits rate calculation, race and ethnicity are significant predictors of health outcomes and risks such as:
  - perceived overall fair or poor health; poor physical and mental health;
  - less access to care;
  - overweight and lack of leisure time physical activity;
  - high blood pressure;
  - disability
- Age and educational attainment are major predictors of some health outcomes and risks:
  - Overall health, physical and mental, are judged as fair or poor more often among non-college graduates than among college graduates.

- Access to care is lower for *young* adult non-college graduates as indicated on indices of insurance, not having a personal doctor and not being able to see a doctor due to cost.
- Health risks, particularly related to healthy (or unhealthy) behaviors or their consequences, are more prevalent among non-college graduates. These risks include lack of leisure time exercise, obesity and smoking.

Overall, the most significant opportunities for targeted intervention, based on the BRFSS data, appear to be among young adults with less than a college degree. For this group, significant areas of risk include lower access to care and behavioral risks such as *obesity and smoking*. The latter risks are present for all age groups of non-college graduates. This suggests a creative search for policies and venues to influence access to care and unhealthy lifestyles, for example in clinics or workplaces, and to maximize the opportunity for follow-up with affected individuals and organizations.

# INTRODUCTION

## Purpose

The purpose of this report is to provide needed information about the health risks faced by the adult population in the MetroWest area, for the **MetroWest Community Health Care Foundation** (MCHCF) and other organizations who are dedicated to improving the lives of residents of the region. The report uses publicly available quantitative data to provide a firm grounding for discussions among these groups and individuals.

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### The Behavioral Risk Factor Surveillance System (BRFSS) Survey

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“The Behavioral Risk Factor Surveillance System (BRFSS) is a continuous, random–digit–dial, landline-only telephone survey of adults ages 18 and older and is conducted in all states as a collaboration between the federal Centers for Disease Control and Prevention (CDC) and state departments of health. The survey has been conducted in Massachusetts since 1986. The BRFSS collects data on a variety of health risk factors, preventive behaviors, chronic conditions, and emerging public health issues. The information obtained in this survey assists in identifying the need for health interventions, monitoring the effectiveness of existing interventions and prevention programs, developing health policy and legislation, and measuring progress toward attaining state and national health objectives. Each year, the BRFSS includes a core set of questions developed by the CDC [U.S. Centers for Disease Control and Prevention]. In 2009, these questions addressed health status, health care access and utilization, overweight and obesity, asthma, diabetes, immunizations, tobacco use, alcohol consumption, HIV/AIDS testing and other selected public health topics.”

Source: Health Survey Program, Massachusetts Department of Public Health, Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research and Evaluation. A Profile of Health Among Massachusetts Adults, 2009. Boston: June, 2010. Accessed July, 2010 at: [http://www.mass.gov/Eeohhs2/docs/dph/behavioral\\_risk/report\\_2009.pdf](http://www.mass.gov/Eeohhs2/docs/dph/behavioral_risk/report_2009.pdf)

The report uses data obtained from MetroWest residents who participated in the Behavioral Risk Factor Surveillance System telephone surveys (BRFSS) of 2007-2009. During the three annual surveys, 58,797 respondents were interviewed, 2,447 of them from the MetroWest region. The BRFSS contained many questions pertaining to categories of perceived health, access to and utilization of primary care opportunities, behavioral risk factors, chronic diseases and conditions, and injuries and limitations.

The report includes comparisons to Massachusetts rates on each of the risk factors, and where possible, analysis of race, ethnicity, age and educational differences in health risk. Survey responses are weighted to ensure that the final results are a fairer reflection of the population as a whole. In addition, age-specific and age-adjusted rates are presented in order to provide fair comparisons for the various population groups considered. For selected indicators, historical trends 1995-2008 are presented. Finally, where possible, comparisons to other “best” states and Healthy People 2010 goals are utilized to suggest “stretch” goals for the MetroWest area.

## MetroWest Definition

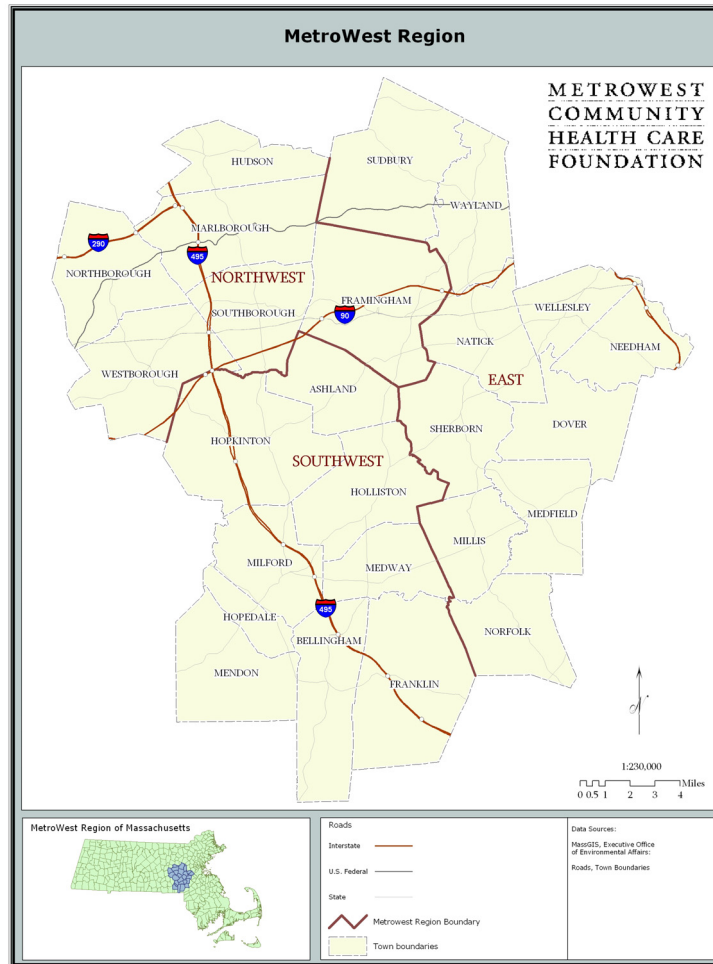
The MetroWest region comprises 25 cities and towns as shown in Table 1 and Figure 1. The region is bounded in the north by Hudson, in the south by Bellingham, in the East by Needham, and in the West by Westborough.<sup>1</sup> These cities and towns cover three different Community Health Network Areas (CHNAs), as defined by the Massachusetts Department of Public Health (MDPH).

**Table 1: MetroWest Towns and MDPH Community Health Network Areas**

Town	Community Health Network Area
Ashland	Greater MetroWest
Bellingham	Community Partners for Health
Dover	West Suburban Health Network
Framingham	Greater MetroWest
Franklin	Community Partners for Health
Holliston	Greater MetroWest
Hopedale	Community Partners for Health
Hopkinton	Greater MetroWest
Hudson	Greater MetroWest
Marlborough	Greater MetroWest
Medfield	Greater MetroWest
Medway	Community Partners for Health
Mendon	Community Partners for Health
Milford	Community Partners for Health
Millis	Greater MetroWest
Natick	Greater MetroWest
Needham	West Suburban Health Network
Norfolk	Greater MetroWest
Northborough	Greater MetroWest
Sherborn	Greater MetroWest
Southborough	Greater MetroWest
Sudbury	Greater MetroWest
Wayland	Greater MetroWest
Wellesley	West Suburban Health Network
Westborough	Greater MetroWest

<sup>1</sup>Note that the definition of MetroWest for the MetroWest Community Health Care Foundation is not same as the “Greater MetroWest Community Health Network Area,” as defined by the Massachusetts Department of Public Health. This is shown in Table 1. The Greater MetroWest CHNA does not include the towns of Bellingham, Dover, Franklin, Hopedale, Medway, Mendon, Milford, Needham and Wellesley, and includes the non-MetroWest communities of Foxboro, Maynard, Plainville, Stow, Walpole and Wrentham. Thus, the historical trends reported for the Greater MetroWest CHNA are likely very close to, but not identical with the MetroWest area as defined by MCHCF. An additional difference is that at this writing, the most recent 2009 BRFSS-CHNA data were not available on MASS-CHIP, the Massachusetts Department of Public Health data query system.

**Figure I: MetroWest Map**



## Methods

### *Race and Ethnicity*

Race and ethnicity categories used in this report include White, non-Hispanic; Black, non-Hispanic; Hispanic; and Asian, non-Hispanic. When referring to White, Black, or Asian race, therefore, these categories include only non-Hispanic respondents. All respondents reporting Hispanic ethnicity are included in the Hispanic category regardless of race. These categories follow standard practice of the U.S. Census, mandated by the Office of Management and Budget.<sup>2</sup>

### *Weighting*

Weighting is used in the BRFSS to adjust for certain problems in the sampling of respondents. First, there may be deliberate over-sampling of residents in certain areas of the state, for example, the larger urban areas. Second there may be different rates of non-response for certain

<sup>2</sup>See the U.S. Census long form at <http://www.census.gov/dmd/www/pdf/d02p.pdf> and the Office of Management and Budget: Federal Register Notice. October 30, 1997. "Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity. Available at <http://www.census.gov/population/www/socdemo/race/Ombdir15.html>

groups in the population. These issues would produce unfair estimates for the population as a whole. To make the estimates “fair,” larger weights are used for the results from under-sampled groups or those relatively less likely to respond. Smaller weights are used for the results from oversampled groups or those relatively more likely to respond. The state-wide survey weights provided by the Massachusetts Department of Public Health are utilized for the MetroWest analyses.

### *Age Adjustment*

Age-adjustment is done to compare population subgroups with very different age structures (e.g., Hispanic vs. White non-Hispanic groups). Age adjustment puts all rates on a common standard: the U.S. 2000 standard population. The reader should exercise caution when using age-adjusted percentages for the comparison of survey data subgroups. While the estimates have been adjusted by age, other factors like gender, income, or education may also have an impact on the results of subgroup comparisons.

## **MetroWest and Comparisons**

### *Healthy People 2010 Objectives*

The Healthy People 2010: National Health Promotion and Disease Prevention Objectives is a national agenda that aimed to significantly improve the health of Americans by the year 2010. Healthy People 2010 (HP 2010) defined two broad national goals: 1) to increase the quality and years of healthy life, and 2) to eliminate health disparities. In this report, we utilize the HP 2010 objectives as one source of “stretch goals” for the MetroWest region.

### *MetroWest and Massachusetts Comparisons*

In the three year period 2007-2009 there were 58,797 BRFSS interviews done in Massachusetts, including 2,447 done in MetroWest. Results of demographic analyses of these surveys are shown in Table 2. MetroWest has a smaller percentage of Black and Hispanic residents than does Massachusetts. There are also very small differences in age distribution and disability status. Note that of 58,797 responses in Massachusetts, 21,354 (36.3 percent) were men. As a result of weighting to adjust for this discrepancy in response rates, the weighted responses are about evenly divided between men (48 percent) and women (52 percent). These same weights are utilized in the MetroWest tables, so that while there are only 972 (39.7 percent) male responses of the 2,447 total, in the final weighted tabulation half are men and half are women. Likewise, only 58 of the 2,447 respondents in MetroWest (2) are under age 25, yet their *weighted* responses account for 11 percent of the total!

Disability is defined as having one or more of the following conditions for at least one year: (1) impairment or health problem that limited activities or caused cognitive difficulties; (2) used

special equipment or required help from others to get around; or (3) reported a disability of any kind.<sup>3</sup>

Presented here are the results of the 2007-2009 Massachusetts BRFSS survey with comparisons between MetroWest and Massachusetts; the median for all states provided by Massachusetts Department of Public Health in their 2009 BRFSS report or calculated from information provided by the Centers for Disease Control on their website;<sup>4</sup> and the Healthy People 2010 goals, published in 2000.<sup>5</sup> Healthy People 2010 goals are typically obtained by determining the “best of the best” subgroup within the U.S. population. This is believed to provide realistic and achievable goals. For MetroWest, we have used a comparison to the healthiest rate for any race/ethnicity group in Massachusetts. These comparisons provide additional “stretch” goals for the MetroWest region.

**OVER-ARCHING GOALS OF HEALTHY PEOPLE 2010**

**Goal 1: Increase Quality and Years of Healthy Life**  
 The first goal of Healthy People 2010 is to help individuals of all ages increase life expectancy *and* improve their quality of life.

**Goal 2: Eliminate Health Disparities**  
 The second goal of Healthy People 2010 is to eliminate health disparities among different segments of the population.<sup>6</sup>

**Table 2: Demographic Characteristics of BRFSS Respondents Un-weighted Sample Size and Weighted Percent**

Demographic	Count Massachusetts 2007-2009	Weighted Percent Massachusetts 2007-2009	Count MetroWest 2007-2009	Weighted Percent MetroWest 2007-2009
<b>Overall</b>	58,797	100	2,447	100
<b>Gender</b>				
<b>Male</b>	21,354	48	972	50
<b>Female</b>	37,443	52	1,475	50
<b>Age Group</b>				
<b>18 - 24</b>	1,983	11	58	11
<b>25 - 34</b>	5,602	16	173	14
<b>35 - 44</b>	9,553	22	436	23

<sup>3</sup>Health Survey Program, Massachusetts Department of Public Health, Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research and Evaluation. A Profile of Health Among Massachusetts Adults, 2009. Boston: June, 2010. Accessed July, 2010 at: [http://www.mass.gov/Eoohhs2/docs/dph/behavioral\\_risk/report\\_2009.pdf](http://www.mass.gov/Eoohhs2/docs/dph/behavioral_risk/report_2009.pdf)

<sup>4</sup> See Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion Prevalence and Trends Data at <http://apps.nccd.cdc.gov/BRFSS/> Accessed September 1, 2010.

<sup>5</sup> See Healthy People goals development process and statements at <http://web.health.gov/healthypeople/>

<sup>6</sup>See overarching Healthy People 2010 goals at: <http://www.healthypeople.gov/About/goals.htm>

Demographic	Count Massachusetts 2007-2009	Weighted Percent Massachusetts 2007-2009	Count MetroWest 2007-2009	Weighted Percent MetroWest 2007-2009
45 - 54	12,179	20	583	22
55 - 64	11,815	14	503	14
65 - 74	8,387	9	338	8
75 and older	8,408	9	318	8
<b>Race-ethnicity</b>				
White	48,093	80	2,222	85
Black	2,982	5	29	2
Hispanic	5,042	8	65	5
Asian	1,005	3	76	6
Other	1,000	2	24	1
Unknown	675	1	31	2
<b>Disability</b>				
Disability	7,491	21	249	19
No disability	20,618	79	949	81
<b>Education</b>				
< high school	6,095	7	79	4
High school	15,806	25	403	16
College 1 - 3 yrs	13,492	23	459	18
College 4+ yrs	23,127	45	1,501	62
<b>Household Income</b>				
<\$25,000	13,981	19	277	10
\$25,000 - 34,999	5,146	8	124	4
\$35,000 - 49,999	6,531	12	200	8
\$50,000 - 74,999	7,695	16	318	15
\$75,000+	16,520	44	1,152	62

Note: White, Black, and Asian race categories refer to non-Hispanic. For further detailed information on methodology, see the 2009 BRFSS Report, available from the Massachusetts Department of Public Health.<sup>7</sup>

### *Race and Ethnicity Comparisons*

Four major socio-demographic variables are of interest in targeting community health efforts, including: gender, age, race/ethnicity, and education.

In this report, we have utilized the U.S. Census categories: Asian, non-Hispanic; Black, non-Hispanic; Hispanic; and White, non-Hispanic. For many of the variables investigated, results for at least some of these groups were not available due to very small numbers of interviews, as shown in Table 2. For example, in the three year period of the survey, there were only 29 Black, non-Hispanic respondents, 65 Hispanic respondents and 76 Asian non-Hispanic respondents.

### *Age and Education Comparisons*

<sup>7</sup> Health Survey Program, Massachusetts Department of Public Health, Division of Research and Epidemiology, Bureau of Health Information, Statistics, Research and Evaluation. A Profile of Health Among Massachusetts Adults, 2009. Boston: June, 2010. Accessed July, 2010 at: [http://www.mass.gov/Eeohhs2/docs/dph/behavioral\\_risk/report\\_2009.pdf](http://www.mass.gov/Eeohhs2/docs/dph/behavioral_risk/report_2009.pdf)

Both age and education are associated with health risks as measured by the BRFSS. We have analyzed results for non-college graduates and for college graduates. Age groups include 25-44; 45-64; and 65 and over. For these comparisons, unlike the others reported, we have excluded those in the 18-24 age group since their formal education may not yet be completed, and because there are too few respondents (only 58) in the 18-24 category to produce reliable comparisons.

There are large educational differences between MetroWest and Massachusetts, and among age groups, as is shown in

Table 3.

**Table 3: Percentage of Persons Aged 25 and over who are College Graduates or More**

Age Group	MetroWest	Massachusetts
25-44	69.6	53.0
45-64	68.1	49.7
65 and over	45.7	33.2

Note: The numbers presented are percentages, unless otherwise indicated.

Since the differences are large, and both age and education are associated with health risk, we have presented results tables separately for age and educational level.

## HEALTH SURVEY RESULTS

### Introduction

The 2007-2009 Massachusetts BRFSS contained many questions pertaining to categories of perceived health, access to and utilization of primary care opportunities, behavioral risk factors, chronic diseases and conditions, and injuries and limitations. These topics are presented in turn, along with selected comparisons and historical trends.

### Perceived Health

#### *MetroWest and Benchmarks*

MetroWest adults report significantly better perceived health status, than Massachusetts or U.S. adults on indicators including overall fair or poor health; physical health; mental health; and feeling sad, blue, or depressed. On each of these indicators, however, MetroWest adults are more likely to report poorer health status than the most positive Massachusetts race and ethnicity group, as shown in Table 4. There are no Healthy People 2010 goals for these perceived health indicators.

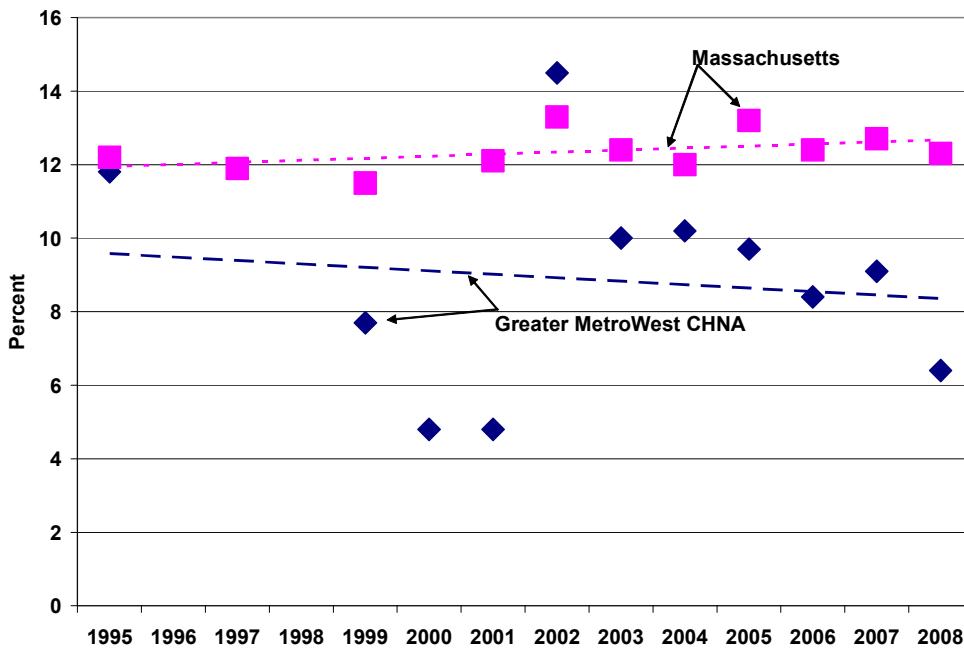
**Table 4: Perceived Health: MetroWest and Comparisons 18+**

Indicator	Metro-West	Margin of Error	Mass.	Margin of Error	Percent Difference*	U.S. Median 2009	Best State in U.S., 2009	HP 2010, if Available	Mass. Best Group Rate	Best Race/Ethnicity Group Rate, Mass.
Fair or Poor Health	7.9	1.4	11.9	0.4	4.0	14.6	10.1		5.6	Asian
Poor Physical Health	6.1	1.0	8.5	0.4	3.5	9.4			3.2	Asian
Poor Mental Health	6.8	1.8	9.0	0.4	3.8	9.2			4.6	Asian
Feeling Sad, Blue or Depressed	2.8	1.8	6.3	0.7	3.5				1.3	Asian

Note: The numbers presented are percentages unless otherwise indicated. Percent difference presented if statistically significant.

*Historical Perspective on Fair and Poor Health*

The historical data points for the Greater MetroWest Community Health Network Area (CHNA) are extremely variable, due to the small sample sizes for single years of data, especially during the 1990s. The linear trend lines in Figure 2 indicate non-significant trends in



perceptions of being in fair or poor health for Massachusetts and in MetroWest CHNA. Massachusetts residents are historically more likely than those in MetroWest to report fair or poor health.

**Figure 2: Percentage in Fair or Poor Health, Data and Trend Lines Race and Ethnicity Comparisons**

Of four items in the perceived health section of the survey, race/ethnicity comparisons on two items were reportable (See Table 5). Black and Hispanic residents reported fair or poor health significantly more often than White respondents.

**Table 5: Perceived Health by Race and Ethnicity. 18+**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White-Hispanic Percent Difference*	Asian NH	White-Asian Percent Difference*
Fair or Poor Health	7.1	24.7	17.6	18.0	10.9	8.3	
Poor Physical Health	5.7			9.3			

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

### Age and Education Comparisons

There is systematic variation in perceived health, comparing different levels of age and educational attainment (See Table 6-Table 9). For each age group, non-college graduates report significantly lower overall health and lower physical and mental health and are more likely to report feeling sad, depressed or blue than are college graduates. These patterns are similar in MetroWest and Massachusetts as a whole.

**Table 6: Fair or Poor Overall Health by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	13.1	1.5	11.6	13.0	3.2	9.8
45-64	12.3	5.7	6.5	20.6	6.5	14.1
65+	25.2	8.9	16.3	28.6	13.4	15.1
All 25+	16.1	4.2	11.9	19.7	5.9	13.8

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: MetroWest young college graduates (1.5 percent) are remarkably unanimous in claiming that they do *not* suffer fair or poor health. In this age group non-college graduates are 8.8 times more likely to claim fair or poor health. In the older age group, non-college graduates are more than two times as likely to claim fair or poor health as are college graduates.

**Table 7: Poor Physical Health by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>25-44</b>	7.8	2.9		8.7	3.1	5.7
<b>45-64</b>	12.1	4.6	7.5	15.1	5.3	9.8
<b>65+</b>	18.6	6.6	12.0	17.4	10.4	7.0
<b>All 25+</b>	<b>12.2</b>	<b>4.1</b>	<b>8.2</b>	<b>13.2</b>	<b>5.0</b>	<b>8.3</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Non-college graduates are more likely to report poor physical health than are college graduates. The percentage reporting poor physical health increases with age, especially among non-college graduates. The percentage older college graduates in MetroWest claiming fair to poor health is only 6.6 percent.

**Table 8: Poor Mental Health by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>25-44</b>	8.7	4.3		14.0	5.4	8.7
<b>45-64</b>	13.2	5.2	8.0	13.8	5.8	7.9
<b>65+</b>	8.0	3.4		6.9	3.3	3.6
<b>All 25+</b>	<b>10.1</b>	<b>4.6</b>	<b>5.5</b>	<b>12.1</b>	<b>5.3</b>	<b>6.9</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Table 9: Feeling Sad, Depressed or Blue by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>25-44</b>	7.3	0.7		10.7	2.6	8.2
<b>45-64</b>	5.5	2.5		10.6	3.4	7.2
<b>65+</b>	6.4	3.1		6.9	3.3	3.6
<b>All 25+</b>	<b>6.3</b>	<b>1.9</b>	<b>4.4</b>	<b>9.7</b>	<b>3.0</b>	<b>6.7</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Overall, non-college graduates report poor mental health and feeling sad, depressed or blue significantly more than college graduates, for both MetroWest and Massachusetts. Less than 1 percent of MetroWest college graduates in the youngest age group report such feelings of depression.

## Summary of Perceived Health

- Comparisons to Massachusetts rates indicate that MetroWest residents perceive themselves to be in relatively good health. This difference dates back at least to 1995, the earliest date for which data are currently available. But MetroWest residents do not meet the best Massachusetts benchmarks.
- Feelings of only fair or poor health are more prevalent among Black and Hispanic residents than other residents in MetroWest.
- Perceived health is lower on several indicators for non-college graduates than it is for college graduates.
- Physical health declines with age, but for other perceived health indicators the correlation with age is not consistent.

## Access to Care

### MetroWest and Benchmarks

Access results are summarized in Table 10. MetroWest adults are not *significantly* different from Massachusetts adults on most available indicators of access to care. On one key measure, having a personal doctor, MetroWest and Massachusetts are *ahead* of the HP 2010 goals. According to these 2007-2009 survey results, the HP 2010 goal of universal health insurance was not yet met in MetroWest or Massachusetts, although the new Massachusetts health insurance system aimed at ensuring coverage for state residents had not been fully implemented during the BRFSS survey period. State-wide, Asian respondents have the best rate for health insurance (only 1.8 percent without insurance).

**Table 10: Access to Care: MetroWest and Comparisons, 18+**

Indicator	Metro West	Margin of Error	Mass.	Margin of Error	Percent Difference*	U.S. Median, 2009	Best U.S. State, 2009	HP 2010, if Available	Mass. Best Group Rate	Best Race/Ethnicity Group Rate, Mass.
Couldn't See a Doctor due to Cost	5.6	1.4	6.9	0.4		13.6			3.9	Asian
Routine Check-up Last Year	73.4	2.9	76.1	0.7					73.4	White
Personal Doctor	89.4	2.2	88.7	0.5		80.9		85.0	90.6	White
Without Health Insurance	3.1	1.3	4.2	0.4				0.0	1.8	Asian

Note: The numbers presented are percentages, unless otherwise indicated. \*Differences presented if statistically significant.

### The Importance of a Medical Home

“A usual source of primary care helps people clarify the nature of their health problems and can direct them to appropriate health services, including specialty care. Primary care also emphasizes continuity, which implies that individuals use their primary source of care over time for most of their health care needs. More after-hours care, shorter travel time to a practice site, and shorter office waits have been associated with patients’ beginning an acute episode of care with primary care physicians. Greater continuity has been observed for individuals with shorter appointment waits, insurance, and access to more after-hours care. Other advantages of primary care are that a primary care provider deals with all common health needs (comprehensiveness) and coordinates health care services, such as referrals to specialists. Evidence suggests that first contact care provided by an individual’s primary care provider leads to less costly medical care.”<sup>8</sup>

The concept of a *medical home* (see box) is a short-hand way of expressing the goal of having a usual source of care. Within this medical home, primary care services may be delivered in a more systematic manner, and effective follow-up is more likely. On the medical home index – having a personal doctor- MetroWest (89.4 percent) was not significantly different from the state, and was higher than both the U.S. median and the HP 2010 goal of 85 percent.

### Race and Ethnicity Comparisons

A significantly higher percentage of MetroWest Hispanic adults than White, non-Hispanic adults reported that they could not see a doctor due to cost, and that they lacked health insurance. On the other hand, Hispanic adults reported routine checkups at a comparable rate to White adults. Black and Hispanic MetroWest residents reported a significantly lower rate of having a personal doctor than White residents, and lag behind the HP 2010 goal of 85 percent having a personal health care provider. Black residents reported a lower rate of having a routine check-up. Results are summarized in Table 11.

**Table 11: Access to Care by Race and Ethnicity, 18+**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White - Hispanic Percent Difference*	Asian NH	White - Asian Percent Difference*
<i>Couldn't See a Doctor due to Cost</i>	4.3			12.2	-7.9		
<i>Routine Check-up Last Year</i>	74.1	53.2	20.9	81.0		67.6	
<i>Personal Doctor</i>	92.0	56.2	35.8	79.1	12.9	88.7	
<i>Without Health Insurance</i>	1.7			15.1	-13.4		

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

<sup>8</sup> See Healthy People 2010. Access to Quality Health Services. <http://www.healthypeople.gov/document/html/volume1/01access.htm> Accessed September 10, 2010.

## Age and Education Comparisons

Tables 12-15 display the differences in access to care for college graduates and non-college graduates in both MetroWest and Massachusetts. These tables demonstrate large differences in access, especially for younger adults.

**Table 12: Couldn't See a Doctor due to Cost by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	17.7	4.0	13.8	12.6	3.8	8.8
45-64	8.4	2.0	6.4	8.7	3.9	4.9
65+	4.5	2.5		3.6	1.8	1.8
All 25+	10.7	3.0	7.8	8.9	3.6	5.3

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Non-college graduates are significantly more likely to report not seeing a doctor due to cost than are college graduates. This tendency is maximized in the younger ages.

**Table 13: Routine Checkup in Last Year by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	59.0	68.4		69.6	68.3	
45-64	75.7	77.8		80.2	78.9	
65+	90.2	89.9		91.1	89.8	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Younger residents are more likely to go without routine checkups. No significant variation by level of college education is noted.

**Table 14: Have a Personal Doctor by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	73.7	91.3	-17.6	82.7	89.7	-7.0
45-64	91.2	96.0		92.6	95.3	-2.7
65+	95.2	97.2		96.3	96.3	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Younger non-college graduates (73.7 percent) are less likely than younger college graduates (91.3 percent) to report having a personal doctor. Both younger groups are less likely than older groups to report having a personal doctor.

**Table 15: No Insurance by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	12.4	0.7	11.7	7.7	1.6	6.2
45-64	3.1	0.9		3.6	1.1	2.5
65+	0.6	0.0		0.4	0.1	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Younger non-college graduates (12.4 percent) are far more likely to report having no insurance than are college graduates (0.7 percent). The percentages without insurance fall substantially with age: close to zero when residents reach Medicare eligibility at age 65.

### *Summary of Access to Care*

- Overall, MetroWest is in a comparatively good position regarding access to care.
- Having a medical home- a regular doctor - is less likely for MetroWest residents who are Black or Hispanic.
- Access to care is more problematic for young non-college graduate MetroWest residents. This includes lack of a medical home, a personal doctor, having no insurance, and not seeing a doctor due to cost. This could result from employment with firms that are less likely to provide medical insurance, and/or lower income levels coupled with a choice to go without health insurance coverage.

## Utilization of Primary Care Tests and Services

### *Massachusetts and Benchmarks*

The BRFSS results for utilization of primary care tests and services are shown in Table 16. On most indicators MetroWest adults show slightly better or equivalent utilization rates, as compared to Massachusetts rates. On several key measures, however, MetroWest adults fall below benchmark comparisons. For example, the Healthy People 2010 goal 1-9 is to “Reduce hospitalization rates for three ambulatory-care-sensitive conditions: 1) pediatric asthma, 2) uncontrolled diabetes, 3) and immunization-preventable pneumonia and influenza.” The latter goal is directly impacted by the extent to which residents receive pneumonia and flu vaccines. Receipt of pneumonia vaccine and flu vaccines are recommended for 90 percent of adults 65 and older. This goal is clearly not met in MetroWest, since only 66.3 percent have flu vaccination and 77.2 percent have pneumonia vaccination.

**Table 16: Utilization of Primary Care Tests and Services: Massachusetts and Comparisons**

Indicator		MetroWest	Margin of Error	Massachusetts	Margin of Error	Percent Difference if Statistically significant	U.S. Median for States, 2009	Best State in U.S. 2009, if Available	HP 2010, if Available	Massachusetts Best Group Rate	Best Race/Ethnicity Group Rate, Massachusetts
Women's Health	Pap Smear Test in the Past Three Years	79.0	6.4	84.2	1.1					86.1	Hispanic
	Clinical Breast Exam in the Past Two Years	86.9	5.6	85.3	1.2					87.0	White
	Mammogram in the Past Two Years (40+)	64.7	5.4	60.2	1.3						White
Men's Health	Prostate Specific Antigen (PSA) Test in the Past Year (50+)	48.8	6.2	49.0	1.7					50.4	White
	Digital Rectal Exam (DRE) in the Past Year (50+)	58.8	6.1	54.9	1.7						White
Colorectal Cancer Tests	Blood Stool Test in the Past Two Years (50+)	14.7	2.6	23.1	0.9	-8.4				27.0	Black
	Sigmoidoscopy or Colonoscopy Test in the Past Five Years (50+)	62.6	3.9	63.3	1.0					66.8	Black
Pneumonia and Influenza	Aged 50-64 Years, Ever Received a Pneumonia Vaccine	17.1	3.1	21.1	0.9	4.0				27.4	Black
	Aged 50-64 Years, Had Flu Vaccine in the Past Year	50.3	4.2	46.9	1.1		44.4			52.3	Asian
	Aged 65 Years or Older, Ever Received a Pneumonia Vaccine	66.3	4.3	69.8	1.0		68.1	73.9	90.0	71.6	White
	Aged 65 Years or Older, Had Flu Vaccine in the Past Year	77.2	3.7	74.6	0.9		69.8	76.8	90.0	75.4	White
Miscellaneous	Cholesterol Tested in the Past Two Years	86.4	3.1	82.0	0.9				80.0	83.8	White
	HIV Test Past Year (18-64)	5.3	1.6	10.0	0.6	-4.7	7.8				NA

Note: The numbers presented are percentages, unless otherwise indicated.  
 \*Differences presented if statistically significant.

**Race and Ethnicity Comparisons**

Six survey items regarding primary care tests and services included enough respondents to make several selected comparisons. For example, Black residents showed a lower percentage tested for HIV-AIDs than White residents. This contrasts with the comparison for Massachusetts as a whole, where Black residents are *more* likely to have had an HIV-AIDs test than White residents. Hispanic residents showed a lower percentage with a Mammogram than White residents. All other differences were not statistically significant.

**Table 17: Utilization of Primary Care Tests and Services: Race and Ethnicity**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White-Hispanic Percent Difference*	Asian NH	White-Asian Percent Difference*
Cholesterol Tested in the Past Two Years	86.5	83.0		89.3		78.3	
Ever Tested for HIV (18-64)	40.4	27.1	13.3	43.7		29.2	
Pap Smear Test in the Past Three Years	78.8			76.9		78.7	
Clinical Breast Exam in the Past Two Years	88.1			87.3		72.2	
Mammogram in the Past Two Years (40+)	68.9			26.0	42.9	47.0	
Aged 65 Years or Older, Ever Received a Pneumonia Vaccine	71.6					65.9	

Note: The numbers presented are percentages, unless otherwise indicated.  
 \*Differences presented if statistically significant.

### Age and Education Comparisons

Some tests in this section were checked only at or above certain age levels. The resulting small sample sizes for MetroWest produce unreliable comparisons; hence, readers should be cautious in interpretation of these data.

### Women's Health

Three items in the BRFSS relate to women's health: Pap Smear, Mammogram and Clinical Breast Exam (See Table 18, Table 19, Table 20).

**Table 18: Pap Smear Test by Age and Education, Females Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	88.4	92.4		91.8	95.2	
45-64	91.5	94.4		85.6	92.8	-7.2
65+	62.7	68.1		59.0	69.9	-10.8

Note: The numbers presented are percentages, unless otherwise indicated.  
 \*Differences presented if statistically significant.

Analysis: Pap Smear testing is at a high level (~90 percent) in both MetroWest and Massachusetts, except for persons aged 65 and over, where the rates drop to ~60 percent. It is not known why this drop occurs.

**Table 19: Mammogram in Past Two Years by Age and Education, Aged 40+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
40-64	89.8	83.9		82.9	86.8	-3.9
65+	79.4	83.2		82.9	86.9	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: There has been some debate in the literature about the appropriate point for starting mammograms, and their subsequent recommended frequency. It appears that there is little variation on the likelihood of their use by educational level, but a significant decline with age among non-college graduate MetroWest residents.

**Table 20: Clinical Breast Exam by Age and Education, Females Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	83.0	90.7		82.7	91.5	-8.8
45-64	94.8	94.1		88.2	92.6	-4.4
65+	68.9	94.8	-25.9	76.8	83.7	-6.9
All 25+	82.5	92.9	-10.3	83.0	90.9	-7.9

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Clinical breast exam is somewhat less likely among non-college graduates than among college graduate women for the oldest MetroWest residents. For those in the middle age group 45-64, rates are equivalent.

### Men's Health

Two items in the BRFSS relate to men's health: the Prostate Specific Antigen (PSA) test and the Digital Rectal Examination (DRE), although the DRE may also be used to detect colorectal cancer in both men and women (See Table 21 and Table 22).

**Table 21: PSA Test in Past Year by Age and Education, Males Aged 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
50-64	46.4**	56.5**		53.0	62.0	-9.0
65+	64.8**	82.7**		64.3	76.9	-12.1
All 50+	54.5	64.9		57.8	67.3	-9.5

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant. \*\* Samples too small for reliable estimate.

Analysis: A Prostate Antigen Specific (PSA) test is much less likely among non-college graduates, and less likely among younger respondents in Massachusetts. The individual "cell" comparisons in MetroWest are based on too small samples to be reliable.

**Table 22: Digital Rectal Exam (DRE) in the Past Year by Age and Education, Aged 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>50-64</b>	59.4**	67.6**		55.7	66.7	-11.0
<b>65+</b>	57.4**	76.7**		63.8	73.3	-9.7
<b>All 50+</b>	<b>58.6</b>	<b>70.7</b>		<b>59.2</b>	<b>69.0</b>	<b>-9.5</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant. \*\*Sample size too small for reliable estimate.

Analysis: Massachusetts non-college graduates are significantly less likely to have had a digital rectal examination. The number of interviewees was too low to provide reliable analysis for MetroWest.

### *Colorectal Cancer Tests*

The BRFSS tracks several tests for colorectal cancers: Blood stool test and sigmoidoscopy or colonoscopy tests (See Table 23 and Table 24).

**Table 23: Blood Stool Test in Past Two Years by Age and Education, Ages 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>50-64</b>	8.1	10.9		19.5	18.4	
<b>65+</b>	20.6	25.6		29.0	28.7	
<b>All 50+</b>	<b>14.6</b>	<b>15.2</b>		<b>24.1</b>	<b>21.7</b>	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: The item on blood stool (fecal occult blood) test is asked of persons 50 and over only. The rates appear to be quite low for all groups within that age range – and lower in MetroWest than in Massachusetts as a whole.

**Table 24: Sigmoidoscopy or Colonoscopy in the Past Five Years by Age and Education, Aged 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>50-64</b>	56.1	64.1		57.9	67.4	-9.3
<b>65+</b>	63.4	69.3		62.1	70.6	-8.5
<b>All 50+</b>	<b>59.9</b>	<b>65.6</b>		<b>59.9</b>	<b>68.4</b>	<b>-8.6</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Non-college graduates in Massachusetts are less likely to have had a sigmoidoscopy or colonoscopy. The number of interviewees in MetroWest was too small to provide a reliable estimate of variation by educational level.

## Colorectal Cancer Screening

The American Cancer Society (ACS), the U.S. Preventive Services Task Force (USPSTF), and the American Gastroenterological Association (AGA), recommend CRC screening for average-risk individuals starting at age 50 by means of annual fecal occult blood testing (FOBT), flexible sigmoidoscopy once every 5 years, annual FOBT and flexible sigmoidoscopy once every 5 years, colonoscopy once every 10 years, or double contrast barium enema once every 5 years.<sup>3</sup> These organizations report insufficient evidence to recommend 1 screening test over another.<sup>9</sup>

### *Pneumonia and Influenza*

Table 25 and Table 26 both refer to significant preventive efforts for pneumonia and flu (influenza). These efforts are typically targeted at older individuals.

**Table 25: Pneumonia Vaccine by Age and Education, Aged 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
50-64	18.3	16.5		23.2	18.9	5.0
65+	68.9	63.4		70.2	69.2	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Pneumonia vaccination is prevalent for those aged 65 and over, but not to the 90 percent Healthy People 2010 goal. Pneumonia vaccination is little affected by educational level among MetroWest residents.

**Table 26: Flu Shot by Age and Education, Aged 50+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
50-64	44.0	53.4		43.1	50.7	-7.6
65+	77.9	76.9		72.9	78.0	-5.1

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: As with pneumonia vaccination, flu shots are not much affected by educational attainment. They are still considerably below the Healthy People 2010 goal of 90 percent.

### *Miscellaneous Tests*

Several additional tests: cholesterol and HIV may allow for early intervention. Results are displayed in Table 27 and Table 28.

<sup>9</sup>DeBourcy AC, Lichtenberger S, Felton S, Butterfield KT, Ahnen, DJ. Community-based Preferences for Stool Cards versus Colonoscopy in Colorectal Cancer Screening *Journal of General Internal Medicine* 2008 February; 23(2): 169–174.

**Table 27: Cholesterol Check in Past Five Years by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	78.4	86.0		72.9	84.4	-11.5
45-64	93.6	96.5		91.5	95.5	-4.0
65+	93.9	99.3		95.4	97.7	-2.3
<b>All 25+</b>	<b>88.0</b>	<b>91.9</b>		<b>85.4</b>	<b>90.6</b>	<b>-5.2</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Cholesterol checks vary little by education, but do vary by age, with the youngest group being least likely to have had a cholesterol check.

**Table 28: HIV Test in Past Year by Age and Education, Ages 25-64**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	10.2	6.7		13.7	10.5	3.2
45-64	2.4	3.8		4.4	3.8	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: No subgroup in the MetroWest population shows a high rate of HIV testing. Differences due to educational level were small or not significant, due to small numbers in the respondent sample.

### *Summary of Utilization of Primary Care Tests and Services*

- Mammograms and clinical breast examinations decline in non-college graduate women 65 and over.
- Pneumonia vaccinations are low among the group age 50-64.
- Pneumonia and flu vaccinations are far below the Healthy People 2010 goal of 90 percent for those 65 and over.
- MetroWest adults 18-64 are significantly less likely to have had an HIV test in the past year than are Massachusetts adults. This may occur because they present or are perceived to have a lower risk profile, and health care providers may therefore be less likely to order this test.
- MetroWest adults are less likely to have had a blood stool test for colon cancer, than are Massachusetts adults.

## Behavioral Risk Factors

### *MetroWest and Benchmarks*

As shown in Table 29, MetroWest adults present a lower behavioral risk profile than do Massachusetts adults: significantly lower on overweight and obesity, current smoking, and heavy drinking. They are more likely to engage in "leisure time physical activity." Nevertheless, only 53.4 percent of MetroWest adults report *regular* physical activity. MetroWest adults (52.8 percent) are far above the best Massachusetts group (38.2 percent) in overweight (including obese).

The Healthy People 2010 goal for obesity is 15 percent. MetroWest (16.8 percent) is trending slightly above this rate, and some MetroWest sub-groups are far above this rate. The best Massachusetts group has only 3.6 percent obese. MetroWest has a long way to go to match this target, and indications are that it is trending in the wrong direction, as seen in Figure 3. At 17.6 percent, MetroWest adults remain far above the HP 2010 goals of only 6.0 percent binge drinking, and above the best Massachusetts group on heavy drinking.

**Table 29: Behavioral Risk Factors: MetroWest and Comparisons**

Indicator	MetroWest	Margin of Error	Mass.	Margin of Error	Percent Difference*	U.S. Median, 2009	Best U.S. State Rate	HP 2010, if available	Mass. Best Group Rate	Best Race/Ethnicity Group Rate, Mass.
Obese	16.8	2.3	21.5	0.6	-4.7	27.2	19.0	15.0	3.6	Asian
Overweight (including obese)	52.8	3.0	57.6	0.7	-4.8	64.2	51.7		38.2	Asian
Consumed at Least Five Servings of Fruits or Vegetables Per Day	28.1	3.4	26.8	0.8		23.5	31.5		27.2	White
Currently Smoke	11.0	2.2	16.1	0.6	-5.1	17.9	6.4	12.0	4.5	Asian
Any Leisure Time Physical Activity	82.7	2.1	78.9	0.6	3.8	75.8	84.2		81.6	White
Regular Physical Activities	53.4	3.6	52.6	1.0		NA	NA		55.4	White
Binge Drinking	17.6	2.7	18.5	0.7		15.5	6.8	6.0	6.1	Asian
Heavy Drinking	4.6	1.0	6.4	0.4	-1.8	5.5	1.9		1.1	Asian

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

### Definition of Physical Activity Level

All respondents were asked if they had participated in any physical activity, other than their regular job, in the past month (any leisure time activity). Respondents were also asked if they had participated in any moderate or vigorous physical activity. Moderate is defined as active for at least 10 minutes at a time, such as brisk walking, bicycling, vacuuming, gardening, or anything else that causes some increase in breathing or heart rate. Vigorous is defined as active for at least 10 minutes at a time, such as running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate. Respondents were also asked how many days per week they were engaged in the activity.<sup>10</sup>

### Definition of Overweight and Obese

Overweight and obese are defined by survey respondent's assessment of their height and weight. These two numbers then define the Body Mass Index.  $BMI = \text{weight}/\text{height}^2$  where weight is measured in kilograms and height is measured in meters. Alternatively, the formula is  $(\text{weight} \times 703)/\text{height}^2$  where weight is in pounds and height is in inches. Persons with  $BMI \geq 25$  are classified as overweight. Persons with  $BMI \geq 30$  are classified as obese.<sup>11</sup>

## Historical Perspective: Obesity, Smoking and Binge Drinking

Each of the three major behavioral risk factor indicators--obesity, smoking and binge drinking--present different historical trends, as shown in the next series of figures: obesity is up, smoking is down, and binge drinking is essentially constant. This pattern appears in both MetroWest and Massachusetts data.

Figure 3 provides clear and convincing evidence of the nation-wide trend that is affecting MetroWest: the increase in obesity, without interruption, from year to year. The future consequences of this trend are dire, including increased heart disease, diabetes, and difficulties in locomotion.

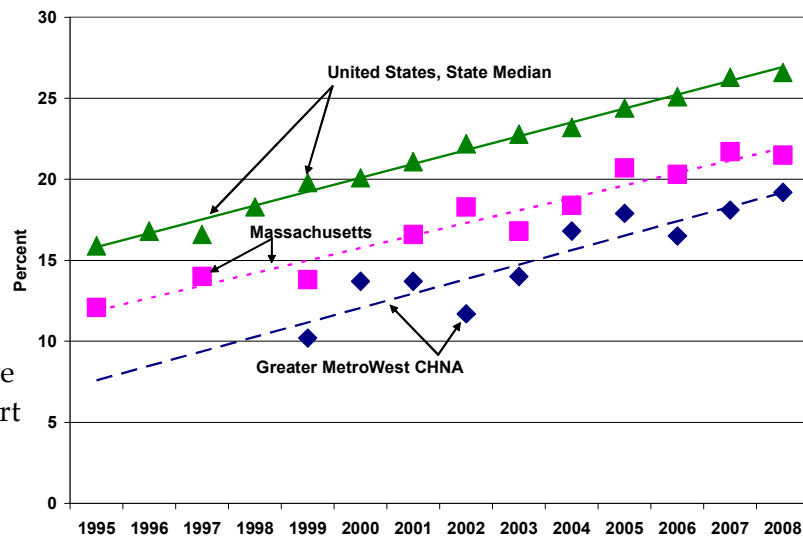


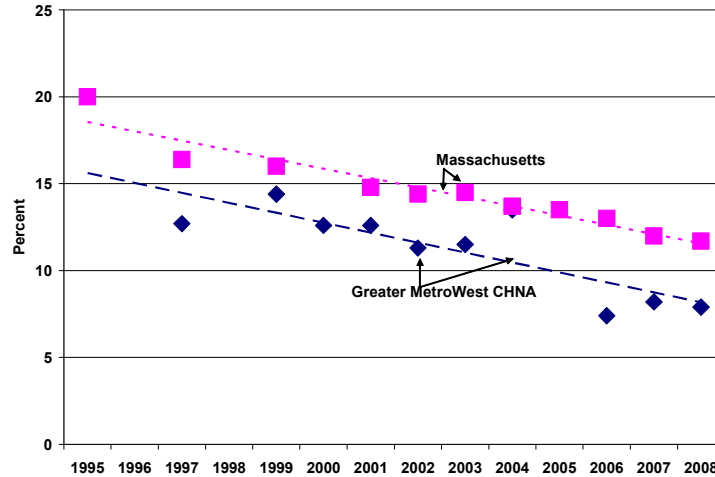
Figure 3: Percent Obese, Greater MetroWest CHNA, Massachusetts and U.S. Trends

<sup>10</sup>Source: Massachusetts Department of Public Health

<sup>11</sup> Adapted from National Center for Chronic Disease Prevention and Health Promotion Chronic Disease Indicators. <http://apps.nccd.cdc.gov/cdi/IndDefinition.aspx?IndicatorDefinitionID=10/> Accessed September 28, 2010

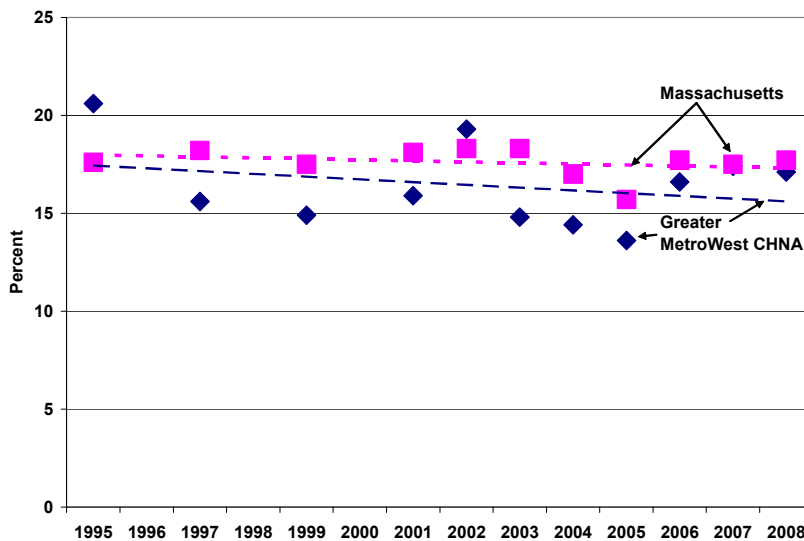
The data on current smoking shown in Figure 4 indicate that for both Greater MetroWest CHNA and Massachusetts as a whole, there have been substantial reductions in smoking over the past decade and a half.

**Figure 4: Percent Smoking, MetroWest CHNA and Massachusetts Trends**



Binge drinking, defined as having 5 or more drinks at one sitting in past 30 days, has remained essentially constant in both MetroWest and in Massachusetts, as shown in Figure 5. This has serious implications for the continued incidence of crashes caused by driving while impaired.<sup>12</sup>

**Figure 5: Binge Drinking Rates and Trend-lines for Greater MetroWest CHNA and Massachusetts**



<sup>12</sup>Data source: Mass-CHIP, Massachusetts Department of Public Health. Accessed September 2, 2010.

### Race and Ethnicity Comparisons

Six items among the behavioral risk factors produced race and ethnicity comparisons, as shown in Table 30. MetroWest Black residents were significantly more likely to be overweight than White residents, while Asian residents were significantly less likely than White residents to be overweight. Black, Hispanic and Asian residents were significantly less likely to engage in “any leisure time activity.” In addition, Asian respondents were less likely to engage in *regular* physical activities. Hispanic residents showed a lower rate currently smoking. Hispanic and Asian residents were not significantly different from White residents with regards to consuming at least five servings of fruits or vegetables per day.

**Table 30: Behavioral Risk Factors: Comparisons by Race and Ethnicity**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White-Hispanic Percent Difference*	Asian NH	White-Asian Percent Difference*
Obese	16.9	33.9		17.6			
Overweight (including obese)	52.1	69.8	-17.7	63.4		30.8	21.3
Consumed at Least Five Servings of Fruits or Vegetables Per Day	28.6			34.2		31.8	
Currently Smoke	11.3	12.4		4.9	6.4		
Any Leisure Time Physical Activity	85.3	77.7	7.6	63.3	20.0	63.2	22.1
Regular Physical Activities	56.9	41.6		48.0		28.4	28.3

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

### Age and Education Comparisons

Tables 31-36 detail the age and educational attainment correlates of the various risk factors, including overweight and obesity, drinking, smoking, physical activity and diet.

**Table 31: Obesity by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	30.8	9.5	21.3	28.6	16.1	12.6
45-64	24.6	17.3		30.6	19.8	10.8
65+	20.4	16.2		22.8	15.4	7.3
All 25+	25.6	13.7	12.0	27.9	17.4	10.4

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Table 32: Overweight (includes Obese) by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	64.8	46.7	18.1	64.6	51.5	13.1
45-64	69.1	56.8	12.3	68.9	59.2	9.7
65+	61.9	53.0		63.6	56.2	7.4
<b>All 25+</b>	<b>65.6</b>	<b>51.7</b>	<b>13.9</b>	<b>65.9</b>	<b>55.2</b>	<b>10.7</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: These results indicate a complex pattern. In both MetroWest and Massachusetts, for each age group, non-college graduates are more likely to be obese. But this difference is maximized for relatively young adults in MetroWest. Over 30 percent of younger MetroWest non-college graduates are obese, while only 9.5 percent of MetroWest younger adult college graduates are obese. This three-fold increase suggests a target population for preventive programming. These results are duplicated, but to a lesser degree, for overweight status. In this case, among MetroWest younger adults, 64.8 percent of non-college graduates are overweight, while 46.7 percent of college graduates are overweight.

**Table 33: Regular Physical Activity by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	47.6	50.9		50.3	57.0	-6.7
45-64	53.4	59.0		46.5	58.9	-12.4
65+	40.7	44.5		38.1	49.6	-11.5
<b>All 25+</b>	<b>47.9</b>	<b>53.4</b>		<b>45.9</b>	<b>56.8</b>	<b>-10.9</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Table 34: Any Leisure Time Physical Activity by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	75.4	88.5	-13.0	73.7	87.5	-13.7
45-64	69.6	89.2	-19.6	69.4	88.5	-19.1
65+	60.8	86.1	-25.2	62.4	81.4	-19.0
<b>All 25+</b>	<b>69.3</b>	<b>88.5</b>	<b>-19.2</b>	<b>69.3</b>	<b>87.0</b>	<b>-17.8</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Non-college graduates are less likely to engage in any leisure time physical activity, than are college graduates. Leisure time physical activity declines in the age group 65 and older for non-college graduates, but does not decline for college graduates.

**Table 35: Five Servings Fruits and Vegetables by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	18.2	26.9		20.0	30.1	-10.1
45-64	24.2	30.8		22.0	31.8	-9.8
65+	30.2	37.1		27.0	36.5	-9.5
<b>All 25+</b>	<b>23.7</b>	<b>29.8</b>		<b>22.5</b>	<b>31.6</b>	<b>-9.1</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: In MetroWest the probability of eating five or more fruits and vegetables rises with increasing age. There are no statistically significant educational differences.

**Table 36: Currently Smoke by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	28.2	3.8	24.4	28.9	7.6	21.3
45-64	22.7	4.8	17.8	24.9	7.7	17.1
65+	6.2	2.8		9.0	4.8	4.2
<b>All 25+</b>	<b>20.3</b>	<b>4.1</b>	<b>16.1</b>	<b>22.4</b>	<b>7.3</b>	<b>15.1</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Smoking decreases with increasing age and education. The youngest group of non-college graduates has a smoking rate of 28.2 percent. This is far above the Healthy People 2010 goal of 12 percent.

Table 37 and Table 38 indicate the levels of binge and heavy drinking. Binge drinking decreases markedly in the oldest age group. Neither binge nor heavy drinking is significantly correlated with education.

**Table 37: Binge Drinking by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	15.3	17.6		25.1	21.4	3.7
45-64	12.9	12.0		15.1	12.6	2.5
65+	2.2	4.4		3.4	4.3	
<b>All 25+</b>	<b>10.9</b>	<b>13.5</b>		<b>15.9</b>	<b>15.6</b>	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Table 38: Heavy Drinking by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	5.6	4.1		7.2	5.3	1.9
45-64	5.3	6.2		6.9	6.5	
65+	2.6	4.4		3.7	5.7	-1.9
<b>All 25+</b>	<b>4.7</b>	<b>5.0</b>		<b>6.2</b>	<b>5.8</b>	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Summary of Behavioral Risk Factors**

- Key items for improvement are: obesity; overweight; regular physical activity and diet (fruits and vegetables); and binge and heavy drinking.
- Young non-college graduates show significantly high levels of obesity.
- Young non-college graduate show significantly high levels of smoking.
- Young non-college graduate show significantly low levels of a diet of five fruits and vegetables per day.
- In contrast to problems of diet, obesity and smoking, binge and heavy drinking are not correlated with educational level.

**Chronic Diseases and Conditions:**

Behavioral risk factors and lack of access to and utilization of primary care combine to increase the incidence of chronic diseases and conditions (See Table 39). For example: obesity, in the face of lack of access to or utilization of primary care, and lack of follow-up in the primary care setting may lead to increased levels of diabetes and heart disease. MetroWest adults need to significantly reduce high cholesterol (30.1 percent versus HP 2010 goal of 17 percent), high blood pressure (22.5 percent versus HP 2010 goal of 14 percent) and diabetes (5.3 percent versus HP 2010 goal of 2.5 percent) to achieve the Healthy People 2010 goals.

**Table 39: Chronic Diseases and Conditions: MetroWest and Comparisons**

Indicator	Metro West	Margin of Error	Mass.	Margin of Error	Percent Difference*	U.S. Median, 2009	HP 2010, if Available	Mass. Best Group Rate	Best Race/ Ethnicity Group Rate, Mass.
High Blood Pressure	22.5	2.3	24.7	0.6			14.0	16.9	Asian
High Cholesterol	30.1	3.9	32.4	0.9			17.0	24.6	Black
Diabetes	5.3	0.9	7.1	0.3	-1.8	8.4	2.5	6.2	White
Ever Had Asthma	14.6	2.3	15.6	0.6		13.4		9.1	Asian

Indicator	Metro West	Margin of Error	Mass.	Margin of Error	Percent Difference*	U.S. Median, 2009	HP 2010, if Available	Mass. Best Group Rate	Best Race/Ethnicity Group Rate, Mass.
Currently Have Asthma	9.9	1.7	10.2	0.5		8.6		6.2	Asian
Ever Had a Stroke (35+)	2.1	0.6	2.6	0.2				1.0	Asian
Heart Disease	7.2	1.2	7.7	0.3				3.0	Asian

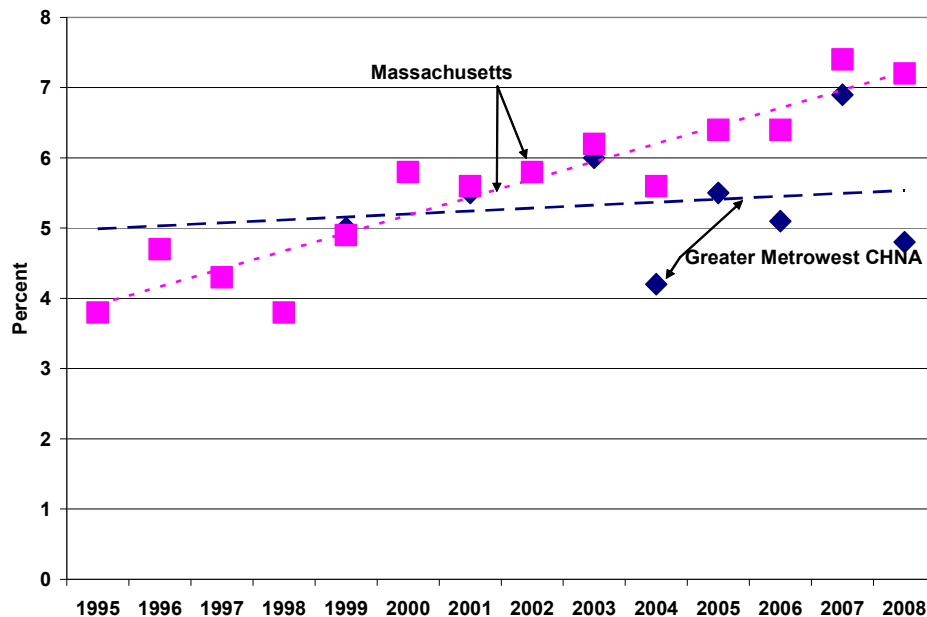
Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

### Historical Perspective on Diabetes

The historical trend lines for diabetes in Massachusetts are clear: it is on an increase, likely due to trends in overweight and obesity. Due to the small number of interviewees available in Greater MetroWest CHNA, the data points are too variable to establish a clear trend line. Nevertheless, the most recent data show that MetroWest may be lower than the current Massachusetts rate (See Figure 6). Note that no Greater MetroWest CHNA data for diabetes are reported by Mass-CHIP for years prior to 1999.

**Figure 6: Percent Diagnosed With Diabetes, Greater MetroWest CHNA and Massachusetts Trends**



## Comparisons by Race and Ethnicity

Black residents reported high blood pressure significantly more often than White residents. No other items in Table 40 showed significant differences, or comparisons were unavailable due to the small number of interviewees. With respect to high blood pressure, White (22.1 percent), Black (36.7 percent) and Hispanic (36.1 percent) respondents are all far above the Healthy People 2010 goals for high blood pressure (14 percent). In addition, all race/ethnicity subgroups are above the Healthy People goals for high cholesterol (17 percent). Also, both White and Hispanic adults are above the HP 2010 goals for diabetes (2.5 percent). There were too few Black and Asian respondents in MetroWest to assess their rates of diabetes.

**Table 40: Chronic Diseases and Conditions: Comparisons by Race and Ethnicity**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White - Hispanic Percent Difference*	Asian NH	White-Asian Percent Difference*
High Blood Pressure	22.1	36.7	-14.6	36.1		18.4	
High Cholesterol	31.6	27.4		22.9		32.5	
Diabetes	5.2	NA		9.7			
Ever Had Asthma	14.7			11.7			
Currently Have Asthma	9.6			9.0			

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

## Chronic Diseases and Conditions: Comparisons by Age and Education

Tables 41-47 show the incidence of chronic diseases and conditions, as correlated with age and educational attainment

**Table 41: Diabetes by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	4.4	0.2		4.1	1.7	2.4
45-64	10.9	5.6		12.1	6.7	5.4
65+	18.2	11.2		19.8	13.3	6.5
All 25+	10.5	3.9	6.6	11.0	5.3	5.7

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Diabetes is highly correlated with both age and education. For every educational group, as age rises, so does the incidence of diabetes. In addition, overall in both MetroWest and Massachusetts, non-college graduates are far more likely to have been diagnosed with diabetes than college graduates. All groups, except for the young college graduates, are above the HP 2010 goal of 2.5 percent with diabetes.

**Table 42: Hypertension by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>25-44</b>	18.4	10.2		15.3	8.5	6.8
<b>45-64</b>	31.0	26.2		36.7	27.4	9.3
<b>65+</b>	58.6	45.3		61.3	50.4	10.9
<b>All 25+</b>	<b>33.8</b>	<b>20.9</b>	<b>12.9</b>	<b>34.7</b>	<b>21.6</b>	<b>13.1</b>

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: The levels of hypertension (high blood pressure) are very high for all in MetroWest, but especially for those in the older age groups. As shown in Table 42, educational level is a significant correlate of high blood pressure, claimed by 33.8 percent of non-college graduates but only 20.9 percent of college graduates.

**Table 43: Ever Had a Stroke by Age and Education, Aged 35+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>35-64</b>	2.1	0.5		2.0	0.9	1.1
<b>65+</b>	8.7	3.2	5.6	7.2	5.6	1.6

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Having had a stroke is more prevalent among older non-college graduates, in MetroWest and generally increases with age. High blood pressure may lead to stroke, and the high blood pressure variation reported in Table 42 roughly parallels the variation in stroke incidence seen in Table 43.

**Table 44: Heart Disease by Age and Education, Aged 35+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
<b>35-64</b>	5.2	3.1		5.6	2.5	3.1
<b>65+</b>	20.9	19.4		20.8	16.6	4.2

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: Heart disease incidence rises with age. For Massachusetts only, heart disease is significantly correlated with educational level.

**Table 45: High Cholesterol by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	17.6	19.7		25.7	21.0	4.7
45-64	48.3	36.2		45.9	38.9	7.0
65+	53.4	45.4	9.6	52.6	50.5	
All 25+	39.4	29.8		41.1	32.6	8.5

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: High cholesterol levels are associated with coronary heart disease and a variety of other conditions. In MetroWest, it appears that a higher percentage of older, non-college graduate adults have been diagnosed with high cholesterol (53.4 percent) than college graduate adults (45.4 percent).

**Table 46: Ever Had Asthma by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	18.6	16.0		17.3	14.8	2.5
45-64	14.1	14.4		14.9	13.7	
65+	13.8	5.2	8.6	12.7	10.7	

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

**Table 47: Current Asthma by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	15.4	11.3		11.9	9.1	3.8
45-64	9.0	9.7		10.8	9.1	1.7
65+	9.7	3.2	6.5	9.5	6.9	2.5

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

Analysis: As shown in Table 46, asthma incidence shows a variable pattern. Older MetroWest non-college graduates are slightly more likely to report ever having asthma than older college graduates. This is similar to the pattern for those reporting that they are currently diagnosed with asthma as shown in Table 47.

### *Summary of Chronic Diseases and Conditions*

- Black MetroWest residents report high blood pressure at a significantly higher rate than do White residents.
- White, Black and Hispanic residents are all above the HP 2010 goals for high blood pressure.
- All groups are above HP 2010 goals for high cholesterol.

- White and Hispanic residents are above HP 2010 goals for diabetes. The rates for Black and Asian groups are unknown, from the BRFSS survey results. Data from other sources (e.g., hospitalizations), show an elevation in diabetic admissions for Black residents).
- Among those 65 and over, non-college graduates are 2.6 times as likely to have ever had asthma, and 3 times as likely to currently have asthma as are college graduates.

## Injuries and Limitations

### *MetroWest and Benchmarks*

Table 48 shows the pattern of injuries and limitations for MetroWest and several comparisons. For most of the measures, MetroWest residents are not significantly different from Massachusetts as a whole. Residents in MetroWest are slightly, but significantly, less likely to have a disability and need help with routine needs and are slightly, but significantly, less likely to have doctor diagnosed arthritis than are Massachusetts residents. There are no HP 2010 goals for these measures, and U.S. 2009 medians are unavailable. The best benchmark rates for Massachusetts show that much more is achievable in MetroWest.

**Table 48: Injuries and Limitations: MetroWest and Comparisons**

Indicator	MetroWest	Margin of Error	Massachusetts	Margin of Error	Percent Difference*	U.S. Median, 2009	Best U.S. State, 2009	HP 2010, if Available	Massachusetts Best Group Rate	Best Race/Ethnicity Group Rate, Massachusetts
<i>Unintentional Fall in the Past Three Months (45+)</i>	15.6	3.0	15.8	0.8					9.2	Asian
<i>Injured by an Unintentional Fall in the Past Three Months (45+)</i>	3.7	1.4	5.0	0.5					NA	NA
<i>Disability</i>	19.1	3.8	20.8	0.8					12.8	Asian
<i>Adults with Disability and Needing Help with Routine Needs or Personal Help</i>	5.3	0.9	7.1	0.3	-1.8				6.2	White
<i>Experienced Limitations due to Arthritis</i>	8.5	1.5	9.5	0.4					3.1	Asian
<i>Ever Had Doctor-Diagnosed Arthritis</i>	21.6	2.1	24.5	0.6	-2.9	25.9	10.7		12.9	Asian
<i>Women Who Ever Experienced Sexual Violence</i>	16.1	8.2	14.3	1.3	1.8				4.3	Asian
<i>Men Who Ever Experienced Sexual Violence</i>	NA	NA	4.5	0.9	NA				NA	NA

Note: The numbers presented are percentages, unless otherwise indicated.

\*Differences presented if statistically significant.

### Race and Ethnicity Comparisons

Two items in this set were available for race and ethnicity comparisons. Black MetroWest residents reported disability significantly more frequently than white residents. No other results were statistically significant. No results were available for Asian residents.

**Table 49: Injuries and Limitations: Race and Ethnicity Comparisons**

Indicator	White NH	Black NH	White-Black Percent Difference*	Hispanic	White-Hispanic Percent Difference*
Disability	19.0	40.8	-21.8	21.6	
Ever Had Doctor-Diagnosed Arthritis	21.9			22.4	

Note: The numbers presented are percentages, unless otherwise indicated. Asian rates are not available.  
\*Differences presented if statistically significant.

### Age and Education Comparisons

Tables 50-56 show injuries and limitations and their correlations with age and educational attainment. A variable pattern of correlation exists. In many instances, due to the small number of respondents, since many of the items were asked only of older adults, the differences are not statistically significant.

**Table 50: Unintentional Fall in the Past Three Months by Age and Education, Aged 45+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
45-64	17.4	12.4		16.7	14.6	
65+	21.0	18.3		16.5	15.5	

\*Differences presented if statistically significant

**Table 51: Injured by an Unintentional Fall in the Past Three Months (45+)**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
45-64	4.8	2.0		5.8	4.1	1.7
65+	3.9	7.7		5.3	4.8	

Note: The numbers presented are percentages, unless otherwise indicated.  
\*Differences presented if statistically significant.

Analysis: Falls, and the injuries deriving from them show a variable pattern for age and education. Only small and/or statistically insignificant differences appear.

**Table 52: Adults with Disability by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	18.7	9.7		19.7	10.8	8.9
45-64	25.3	15.7		29.0	17.7	11.3
65+	41.9	19.0	22.9	35.1	30.7	4.4
<b>All 25+</b>	<b>27.9</b>	<b>13.7</b>	<b>14.2</b>	<b>27.0</b>	<b>16.3</b>	<b>10.7</b>

Note: The numbers presented are percentages, unless otherwise indicated.  
\*Differences presented if statistically significant.

**Table 53: Adults with Disability and Needing Help with Routine Needs or Personal Help by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	9.3	0.6	8.7	6.3	1.8	4.5
45-64	8.3	1.4	6.8	9.8	3.0	6.8
65+	18.3	4.5	13.9	11.6	8.5	3.1
<b>All 25+</b>	<b>11.4</b>	<b>1.5</b>	<b>9.9</b>	<b>8.9</b>	<b>3.2</b>	<b>5.7</b>

Note: The numbers presented are percentages, unless otherwise indicated.  
\*Differences presented if statistically significant.

**Table 54: Ever Diagnosed with Arthritis by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	10.5	8.6		15.9	8.9	7.0
45-64	33.0	27.7		38.0	29.0	9.1
65+	50.8	53.4		57.9	51.4	6.5
<b>All 25+</b>	<b>29.5</b>	<b>21.9</b>	<b>7.6</b>	<b>34.5</b>	<b>22.6</b>	<b>11.9</b>

Note: The numbers presented are percentages, unless otherwise indicated.  
\*Differences presented if statistically significant.

**Table 55: Arthritis Related Limitations by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	7.1	2.7		6.3	2.9	3.4
45-64	12.2	10.1		17.3	9.9	7.4
65+	21.8	17.9		22.3	18.7	3.6
<b>All 25+</b>	<b>12.9</b>	<b>7.6</b>	<b>5.3</b>	<b>11.3</b>	<b>7.8</b>	<b>6.5</b>

Note: The numbers presented are percentages, unless otherwise indicated.  
\*Differences presented if statistically significant.

Analysis: Disability, which may result from injuries but also from chronic diseases, including arthritis, occurs much more frequently in the older and in the non-college graduate groups, as

shown in Table 52. Table 55 shows the pattern for limitation from arthritis: increasing with age.

**Table 56: Women Who Ever Experience Sexual Violence by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	4.0	10.6		13.6	17.0	
45-64	16.9	12.7		14.9	17.6	
65+	1.5	14.2		3.1	7.7	-3.6

Note: The numbers presented are percentages, unless otherwise indicated. Table based on very small MetroWest samples for only one year. \*Differences presented if statistically significant.

**Table 57: Men Who Ever Experienced Sexual Violence by Age and Education, Aged 25+**

Age Group	MetroWest			Massachusetts		
	< College Grad	College Grad+	Percent Difference*	< College Grad	College Grad+	Percent Difference*
25-44	0.0	0.8		4.5	4.4	
45-64	4.2	1.6		5.6	4.1	
65+	0.0	2.4		1.8	2.1	

Note: The numbers presented are percentages, unless otherwise indicated. Table based on very small MetroWest samples for only one year. \*Differences presented if statistically significant.

Analysis: Sexual violence is a new indicator for BRFSS and there is therefore only a small sample on which to calculate rates. Rates may therefore be somewhat unreliable. Nevertheless, there is a clear difference between female (Table 56) experience of sexual violence (more) and male (Table 57) experience of sexual violence (less). There does not appear to be a regular pattern for sexual violence to be correlated with age or education.

### *Summary of Injuries and Limitations*

- MetroWest residents are slightly, but significantly, less likely than Massachusetts residents to have a disability and need help or have arthritis.
- MetroWest rates are worse than the best Massachusetts rates for such measures as unintentional falls, disability, doctor diagnosed arthritis, and limitations due to arthritis.
- Disability and physical limitation typically increases with age. Overall, it decreases with increasing education.
- There is a large gender difference in sexual violence, but no age or educational difference, among MetroWest residents.

## SUMMARY OF FINDINGS

### Perceived Health

- Comparisons to Massachusetts rates indicate that MetroWest residents perceive themselves to be in relatively good health. This perception has some historical stability, but, MetroWest residents do not meet the best Massachusetts benchmarks.
- Feelings of fair or poor health are more prevalent among Black and Hispanic residents than other residents in MetroWest.
- Perceived health is lower on several indicators for non-college graduates than for college graduates.
- Physical health declines with age, but the correlation with age is not consistent for the other perceived health indicators.

### Access to Care

- Overall, MetroWest is in a comparatively good position regarding the various indices of access to care.
- Having a medical home- a regular doctor - is less likely for MetroWest residents who are Black or Hispanic.
- Access to care is more problematic for young adult MetroWest residents with lower levels of education. This could result from employment with firms less likely to provide medical insurance, and/or a choice to go without health insurance coverage.

### Utilization of Primary Care Tests and Services

- Mammograms and clinical breast exams decline in non-college graduate women 65 and over.
- Pneumonia vaccinations are low among the group age 50-64.
- Pneumonia and flu vaccinations are far below the Healthy People 2010 goal of 90 percent.
- MetroWest adults 18-64 are significantly less likely to have had an HIV test in the past year than are Massachusetts adults. This may occur because they present or are perceived to have a lower risk profile, and health care providers may therefore be less likely to order testing.
- MetroWest adults are less likely to have had a blood stool test for colon cancer, than are Massachusetts adults.

### Behavioral Risk Factors

- Key items for improvement are: obesity, overweight, regular physical activity and diet (fruits and vegetables).
- Young non-college graduates show significantly high levels of obesity.
- Young non-college graduates show significantly high levels of smoking.

- Young non-college graduate show significantly low levels of a diet of five fruits and vegetables per day.
- In contrast to problems of diet, obesity and smoking, binge and heavy drinking are not correlated with educational level.

### **Chronic Diseases and Conditions**

- Black residents report high blood pressure at a significantly higher rate than do White residents.
- White, Black and Hispanic residents are all above the HP 2010 goals for high blood pressure.
- All groups are above HP 2010 goals for high cholesterol.
- White and Hispanic residents are above HP 2010 goals for diabetes. The rates for Black and Asian groups are unknown from the BRFSS survey results. Other data (e.g., hospitalization) show an elevation in diabetic admissions for Black residents.
- Among those 65 and over, non-college graduates are 2.6 times as likely to have ever had asthma, and 3 times as likely to currently have asthma as are college graduates.

### **Injuries and Limitations**

- MetroWest residents are slightly, but significantly, less likely than Massachusetts residents to have a disability and need help or have arthritis.
- MetroWest rates are worse than the best Massachusetts rates for such measures as unintentional falls, disability, doctor diagnosed arthritis, and limitations due to arthritis.
- Physical limitation typically increases with age, but declines with increasing education.
- There is a large gender difference in sexual violence, but no age or educational difference, among MetroWest residents.