



Obesity and Cancer in Massachusetts, 2000-2009

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Background:

Obesity has become recognized as a major public health challenge. While it is commonly known that obesity increases the risk of heart disease, stroke, high blood pressure and diabetes, many are still unaware that obesity can affect cancer risk. There is a growing body of evidence that being obese increases risk of certain types of cancer and is associated with worse prognosis and outcomes.

Purpose:

To compile relevant data that can inform Cancer Control educational efforts and public health policy regarding obesity and cancer, and serve as a baseline from which future progress and trends can be monitored. Data presented include the incidence of selected obesity-related cancers in Massachusetts, obesity prevalence, and other health behaviors associated with either obesity, such as physical activity, or with cancer, such as screening.



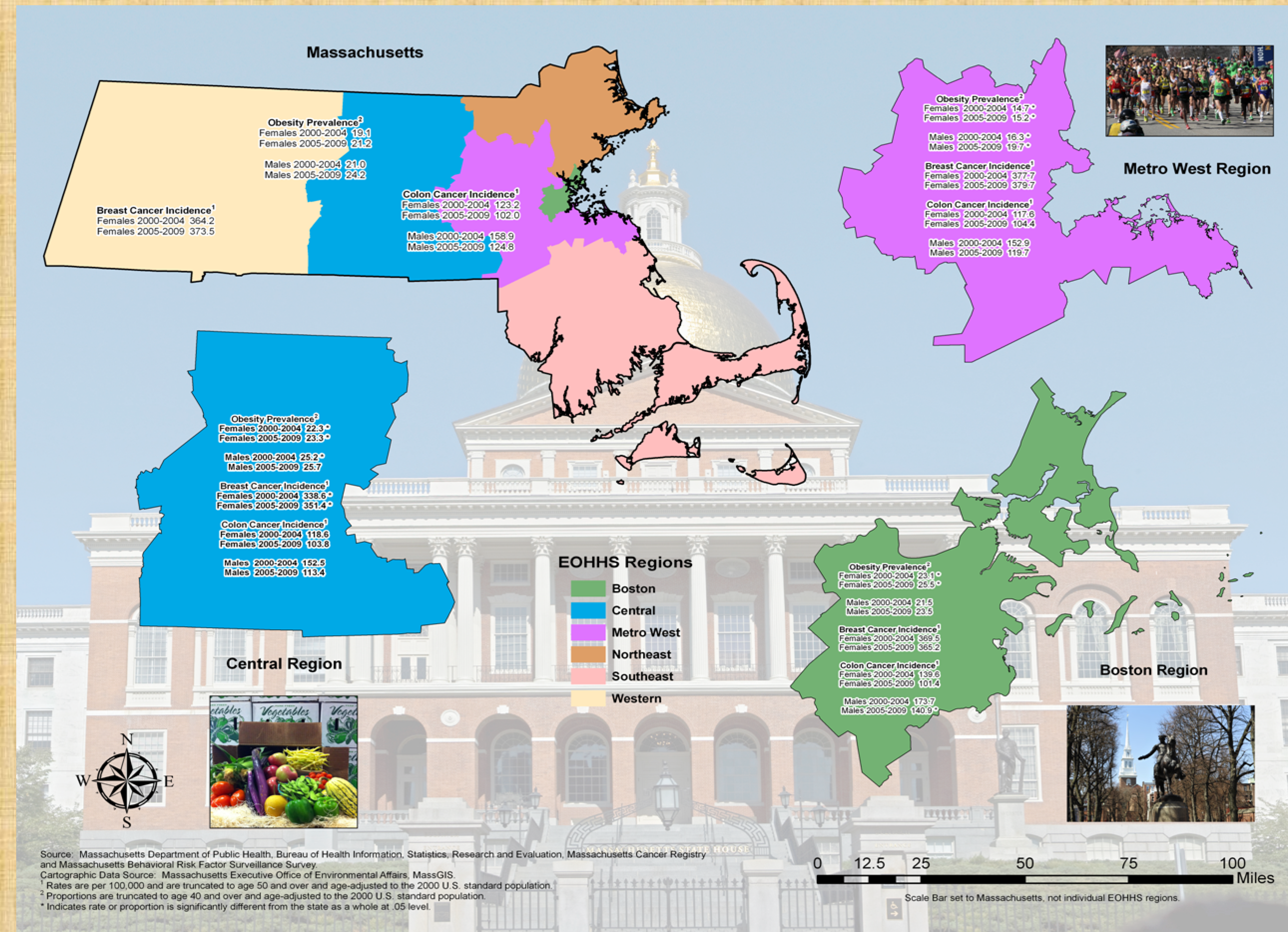
Methods:

The Massachusetts Cancer Registry, in collaboration with the Behavioral Risk Factor Surveillance Program and the Comprehensive Cancer Control and Prevention Program, compiled Massachusetts-specific incidence rates on obesity-related cancers and measures of health behaviors for Massachusetts as whole, and for Massachusetts Executive Office of Health and Human Services (EOHHS) regions. State and regional profiles were created that include truncated age-adjusted rates for 2000-2004 and 2005-2009 for post-menopausal breast cancer and colon cancer among males and females aged 50 and above and BRFSS data on percent obese, cancer screening prevalence, and leisure time physical activity.

Regions to be highlighted were selected by calculating a score for each region based on the following factors: post-menopausal breast cancer incidence, male and female colon cancer incidence, male and female obesity prevalence, prevalence of mammography screening, prevalence of colonoscopy screening among males and females, and leisure time physical activity for males and females. Factors for each region were compared to Massachusetts as a whole for two time periods: 2000-2004 and 2005-2009, to identify significant differences from the state. The three regions with the highest absolute scores are illustrated here.

Scoring system used to select regions:

- 0 = not significantly different from Massachusetts as a whole
- +1 = a statistically significant positive factor (such as significantly lower obesity compared to the state as a whole)
- 1 = a statistically significant negative factor (such as significantly higher cancer incidence compared to the state as a whole)



Screening, Leisure Time Physical Activity, and Socioeconomic Status

FACTOR	MASSACHUSETTS	CENTRAL	METRO WEST	BOSTON REGION
Mammography				
Females 2000-04	83.4	80.6	84.7	82.5
Females 2005-09	84.5	84.5	86.0	82.6
Colonoscopy				
Females 2000-04	44.1	43.0	47.5	46.5
Females 2005-09	58.4	58.5	61.8	62.5
Males 2000-04	51.2	49.2	55.4	55.3
Males 2005-09	64.4	63.3	68.7	66.7
Leisure Time Physical Activity				
Females 2000-04	74.1	71.0	79.2	70.1
Females 2005-09	74.8	72.3	80.1	69.2
Males 2000-04	78.6	78.1	82.2	75.2
Males 2005-09	78.2	76.9	83.4	74.3
SES				
Per capita income	\$25,952	\$22,775	\$34,341	\$24,413
% below 100% poverty	9.3	8.8	5.3	18.2
% with < HS education	15.2	16.2	9.0	20.3

Percentages in blue are significantly different from Massachusetts at .05 probability.

Current MDPH Initiatives Around Obesity:

- Mass in Motion – launched in 2009 – aims to promote wellness and prevent overweight and obesity with a focus on importance of healthy eating and physical activity.
- Childhood Obesity Demonstration Grant (\$1.5 million) will focus on policies, systems, and environmental changes in selected communities.

Results:

Metro West region had the highest score (+9) and the lowest obesity prevalence of all the regions. Statistically significant positive factors included:

- lower obesity among females and males for both time periods (+4)
- higher colorectal cancer screening among males for 2005-09 (+1)
- higher leisure time physical activity for both males and females for both time periods (+4)

The Metro region had no statistically significant negative factors.

The Metro region has the highest SES and the lowest percent with less than a high school education.

Central region had a score of (-2) and had significantly higher obesity prevalence among females for both time periods, and males for 2000-04. Statistically significant negative factors included:

- higher obesity among females for both time periods, and males for 2000-04 (-3)
- lower mammography rates for 2000-04 (-1)

Central region had the following significant positive factors:

- lower breast cancer incidence for both time periods (+2)

The central region had a lower per capita income than the state as a whole, and a higher percentage of population with less than a high school education compared to the state as a whole.

Boston region had the lowest overall score (-5) and had significantly higher obesity among females for both time periods. For males, obesity was similar to the state average for both time periods. Statistically significant negative factors included:

- higher colorectal cancer incidence among males for 2005-09 (-1)
- higher obesity for females for both time periods (-2)
- lower leisure time physical activity for females for both time periods (-2)

Boston region had no statistically significant positive factors.

The Boston Region has the highest percent living below 100% of the poverty level (18.2%) and the highest percent with less than a high school education (20.3).

Conclusions:

- The findings of this project support the well established relationship of SES and health status that consistently shows that higher income and education are associated with better health, more preventive and healthy behaviors and lower obesity.
- The region with the highest SES and education indicators (Metro West), had the lowest obesity, highest leisure time physical activity, some of the highest screening rates, lowest colorectal rates and highest breast cancer rates (known to be associated with high SES).
- The region with the lowest SES and education indicators (Boston region), had the lowest leisure time physical activity and had significantly high obesity among females, as well as high colorectal cancer incidence rates.
- Obesity is increasing in all regions regardless of SES.
- The relationship between obesity and cancer is complex. Other factors such as SES and screening may have a stronger influence than obesity on cancer rates and should be considered in future analyses.

