

TECHNICAL DOCUMENTATION

Overview

This report contains details about the development of the 2018 Massachusetts Healthy Aging Data report. This includes technical definitions, data sources, years of data used, and definitions the geographic units employed for various indicators. In addition, we describe the statistical methods used to estimate indicators derived from micro-level data. Our general approach is hierarchical reporting. We report indicators at the smallest, most local level possible (i.e., neighborhood, zip code, or individual community) when data allow, and report in larger geographic units (i.e., county) when necessary.

1. Healthy aging indicator definitions

Most of the indicators are derived from secondary data sources and limited to those indicators for which data are available for geographic subareas within Massachusetts. Table A-1 contains technical definitions for most of the indicators reported in this study, except the socio-demographic variables used to describe the population composition of communities.

2. Data Sources

Multiple data sources are used in this study. Table A-2 contains a summary of all data sources, and the specific years of data used for population composition and healthy-aging indicators. Estimates of community-level indicators of physical/mental health, chronic disease prevalence, access to care, wellness and prevention health behaviors, service utilization, and nutrition and diet were derived from two major data sources: the Medicare Master Beneficiary Summary File (2014-2015) and the Behavioral Risk Factor Surveillance System (2010-2015). Population composition measures were drawn from the Five-Year American Community Survey (2012-2016) produced by the U.S. Census Bureau. These major data sources, and other data sources used for other community, safety, and economic variables, are described below.

Medicare Master Beneficiary Summary File

Medicare claims data from the Centers for Medicare and Medicaid Services (CMS) are a rich source of data for measuring chronic disease prevalence and Medicare service utilization rates for individual cities and towns. The *Master Beneficiary Summary File (MBSF)* is an annual data file constructed by the Chronic Conditions Data Warehouse that includes individual records for all persons eligible for Medicare for at least one month during a calendar year. The MBSF is comprised of four data files containing different types of information:

- (1) The *Master Beneficiary Summary File-A/B/D (MBSF-A/B/D)* includes standard Medicare administrative data fields (e.g., sex, race, dates of birth and death), monthly variables indicating specific months of Medicare eligibility, managed care

enrollment, and Medicaid state buy-in status, as well as geographic residence identifiers (state, county, zip code) based on each beneficiary's residence address used for Social Security Administration correspondence.

- (2) The *Master Beneficiary Summary File-Chronic Conditions (MBSF-CC)* includes indicators derived from Medicare algorithms applied to diagnostic codes on individual Medicare fee-for-service provider claims for 27 prevalent chronic conditions (e.g., diabetes, stroke, depression, Alzheimer's disease or related dementia, chronic obstructive pulmonary disease, hip fracture, cancer), as well as the earliest date since 1999 that the diagnostic criteria for prevalence were first met.
- (3) The *Master Beneficiary Summary File- Other Chronic or Potentially Disabling Conditions (MBSF-OC)* includes indicators derived from Medicare algorithms applied to diagnostic codes on individual Medicare fee-for-service provider claims for other chronic conditions (e.g., ADHD, Alcohol Use Disorders, Anxiety Disorders, Autism Spectrum Disorders, Bipolar Disorder, Depressive Disorders, Drug Use Disorders, Epilepsy, Fibromyalgia, Chronic Pain and Fatigue, Human Immunodeficiency Virus and/or Acquired Immunodeficiency Syndrome (HIV/AIDS), Leukemias and Lymphomas, Liver Disease, Migraine and Chronic Headache, Mobility Impairments, Obesity, Peripheral Vascular Disease, Personality Disorders, Post-Traumatic Stress Disorder, Pressure and Chronic Ulcers, Schizophrenia, Sensory - Blindness and Visual Impairment, Sensory – Deafness and Hearing Impairment, Tobacco Use, Traumatic Brain Injury), as well as the earliest date since 1999 that the diagnostic criteria for prevalence were first met.
- (4) The *Master Beneficiary Summary File-Cost and Use (MBSF-CAU)* contains aggregated summaries of annual service utilization and reimbursements for various types of Medicare services (e.g., inpatient hospitalizations, physician visits, home health visits, skilled nursing facility stays, emergency room visits, hospital readmissions, and filled Part D prescriptions).

Each beneficiary record contains an encrypted individual identifier so that information from the four data files can be merged together. The four MBSF data files were obtained from CMS for all Medicare beneficiaries who were age 65 years or older on January 1st of the calendar year, and had a state residence code of Massachusetts for 2014 or 2015. The data were obtained under a formal data use agreement required for privacy protection of health information contained in research-identifiable data files.

A major strength of the MBSF data is their coverage of 100% of aged Medicare beneficiaries living in Massachusetts. This permits the estimation of health indicators for relatively small individual towns. These rates can be potentially updated annually. The major shortcoming of the MBSF data are that they are derived from claims data. Since chronic condition prevalence is identified from diagnoses on Medicare claims, rates of chronic disease prevalence and service use can only be measured for Medicare beneficiaries who receive their care from fee-for-service providers. Managed care providers such as Medicare Advantage plans do not submit claims data to Medicare for

processing. In addition, beneficiaries whose chronic condition is undiagnosed because they do not have access to a physician will not be identified as having that chronic condition. Finally, the health indicators constructed from MBSF data are limited in scope since they are based on administrative data. Nevertheless, these data are rich with respect to geographic specificity compared to other common data sources for health indicators.

Behavioral Risk Factor Surveillance System (BRFSS)

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based system of annual health surveys established by the Centers for Disease Control and Prevention (CDC) that collects information via a telephone survey on health risk behaviors, preventive health practices, and health care access, primarily related to chronic disease and injury. The BRFSS provides a rich source of information about individual health behaviors such as smoking, excessive drinking, obesity, preventive health service use, which are relevant for the development of healthy aging indicators. A core set of questions about such health behaviors are included every year. The Massachusetts Department of Public Health (MDPH) is responsible for collecting BRFSS data for Massachusetts. The MDPH adds questions beyond the core CDC questions on relevant topics to support health care policy planning, to guide preventive health interventions, and to assess health status and its change over time for Massachusetts residents. Person-level BRFSS data for were obtained from the Massachusetts Department of Public Health under a formal data use agreement required for individual privacy protection of health information.

The BRFSS survey is carried out under a complex survey design intended to enhance the efficiency of using limited sample population to produce reliable state-level estimates of health indicators. Interviews are administered in three alternative languages (English, Spanish, Portuguese) depending upon respondents' preferences. Respondents are oversampled in larger cities in the state under the BRFSS complex survey design to increase the representation of racial/ethnic minority respondents. Before 2008, BRFSS data were obtained entirely through land-line telephone surveys. Because of the rising prevalence of households with only cell-phones, the BRFSS survey design was modified in 2011 to include both land-line and cell phone samples. Furthermore, the method used to derive post-stratification factors was changed in 2011 to a raking procedure that permits finer adjustments to population weights based on multiple population attributes. These changes in the 2011 BRFSS survey design introduce some complexities when data from 2010 or earlier are pooled with more recent data. How these changes in survey design are addressed will be discussed later in the description of estimation methods.

A major strength of the BRFSS data is its rich information on health behaviors. To our knowledge no other secondary dataset has the range of variables on health behaviors of older Massachusetts residents. The BRFSS has several limitations for small area analyses. The BRFSS survey design was developed for obtaining the state-level estimates. Accordingly, the respondent sample sizes for most individual towns in

Massachusetts in any year are far too small to produce reliable estimates for most towns. Even if appropriate adjustments are made because of unrepresentative samples for many small towns, small area estimation will require that BRFSS survey data be pooled over multiple years. For example, the number of respondents 60 years or older with valid geographic residence identifiers in the entire state BRFSS sample has ranged from 3,496 in 2015 to 8,689 in 2011. This is far too small to estimate town-level rates for all 351 cities and towns in Massachusetts.

Because of the small sample size of annual BRFSS surveys, multiple years of survey data were pooled together, and multiple cities and towns were aggregated together to create larger geographic areas containing multiple cities and towns. Table A-2 shows the specific years of data used to derive estimates for each BRFSS indicator. Details about estimation methods are provided later in the section describing BRFSS estimation methods.

Medicare Compare Access to Care

Data on Medicare service providers (physicians, hospitals, nursing homes, and home health agencies) were obtained from Medicare website <http://www.medicare.gov>. Number of primary care providers was obtained from website (<http://www.medicare.gov/physiciancompare/search.html>) using the search term “city/town name, Massachusetts” and “Primary care”. After initial searching with this term, we updated search results by selecting within 5 miles option. Number of hospitals was obtained from website (<http://www.medicare.gov/hospitalcompare/search.html>) using the search term “city/town name, Massachusetts”. After initial searching with this term, we updated search results by selecting within 5 miles option. Number of nursing homes was obtained from website (<http://www.medicare.gov/nursinghomecompare/search.html>) using the search term “city/town name, Massachusetts”. After initial searching with this term, we updated search results by selecting within 5 miles option. Number of home health agencies was obtained from website (<http://www.medicare.gov/homehealthcompare/search.html>) using the search term “city/town name, Massachusetts”. There was no option for selecting within 5 miles for home health agencies. Home Health Compare lists agencies whose geographic service areas contain the selected zip code, city, or town.

U.S. Census Bureau

Data on population composition were downloaded from the U.S. Census Bureau Fact Finder website (<http://factfinder2.census.gov>). All census population estimates reported in the community profiles were derived from the 5-year American Community Survey data (2012-2016). Data were downloaded for all 351 individual cities and towns. In addition, census tract data were downloaded and aggregated for the 16 planning districts within the city of Boston. Census tract definitions of Boston planning districts were downloaded from the Boston Redevelopment Authority website (<http://www.bostonredevelopmentauthority.org/research-maps/research-publications/neighborhoods>). Census tract data were also downloaded and aggregated

for six Springfield and six Worcester subareas based on planning definitions of neighborhoods. Clark University Geography Department provided census tract definitions for Worcester. Census tract definitions of Springfield neighborhoods were downloaded from the office of planning and economic development in the city of Springfield website (<https://www.springfield-ma.gov/planning/index.php?id=607>).

Walk Score®

Community-level indicators of geographic access to amenities and the overall walkability of communities are obtained from the Walkscore.com website (<http://www.walkscore.com/>). A total walkability score scaled to range from 0 (least walkable) to 100 (most walkable) was downloaded for individual cities and towns and for planning districts within Boston were downloaded using the search term “city/town name, Massachusetts.” All scores reported in the community profiles were downloaded from the Walk Score website during July and August 2017. Current scores for some communities may differ from these since Walk scores are updated as commercial or public facilities open or close over time.

Department of Agriculture

Data on the availability of supermarkets were downloaded from the U.S Department of Agriculture Food Access Research Atlas website (<https://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data/>). The data were initially released in January 2017, and updated in May 2017. The percentage of older adults with poor supermarket access was calculated based on the share of older population age 65 and over who were beyond 1 mile (in urban) or 10 miles (in rural) from supermarkets.

Massachusetts Voter data

Data for voters of 18 years and older for 2016 were obtained for cities and towns from the Massachusetts Elections Division, Secretary of the Commonwealth. Data could not be reported separately for planning districts within Boston and for neighborhoods within Worcester and Springfield.

Dementia-Friendly data

Information about the availability of adult day health centers, memory cafes, and dementia related support groups were collected for a related project supported by the Tufts Health Plan Foundation (see report https://mahealthyagingcollaborative.org/wp-content/uploads/2017/07/DFAF_report_07312017.pdf). The Adult Day Services Association and the Alzheimer’s Association provided data.

Age-Friendly data

Data from the Massachusetts Healthy Aging Collaborative was used to determine if a community was active, emerging, or dormant in terms of age-friendly development. See <https://mahealthyagingcollaborative.org/age-friendly/ma/map/>.

MassGIS data

The MassGIS maintains database of geographic features such as infrastructure, physical resource, land use, and political boundaries (<https://www.mass.gov/service-details/overview-of-massgis-data>). Data on the percentage of open space was obtained from the database of protected and recreational open space including the boundaries of conservational land and outdoor recreational facilities (<https://www.mass.gov/service-details/massgis-data-layers>). We selected recreational, conservational, historical, or cultural sites where open to public accessibility. Data on number of universities and colleges and number of public libraries were also obtained from the MassGIS. We did not include the vocational schools. The MA DPH Bureau of Environmental Health (BEH) GIS program also made distributions of community health centers available at <https://docs.digital.mass.gov/dataset/massgis-data-community-health-centers>. We counted number of community health centers for each city/town. The data was updated in December 2017.

Elder Economic Security Standard™ Index

Four measures of geographic comparative cost of living are reported at the county level using the Elder Economic Security Standard™ Index. This index contains county estimates of the minimum income needed by older households to attain a modest standard of living in the community that reflects economic security. “The Elder Index defines economic security as the financial status where elders have sufficient income (from Social Security, pensions, retirement savings, and other sources) to cover basic and necessary living expenses” (Gerontology Institute, University of Massachusetts Boston (2012), p 5). While Elder Index estimates are available at the county-level for 18 different types of community-resident households with a head 65 years or older defined by health status (excellent, good, poor), living situation (alone, couple), housing costs (owner with mortgage, owner without mortgage, renter), we report Elder Index estimates for four types of households in good health (single renters, single owners without mortgages, couple renters, and couple owners without mortgages). Elder indices for 2010 were downloaded for all counties in Massachusetts from the Wider Opportunities for Women Economic Security Database (<http://www.basiceconomicsecurity.org/EI/>).

Federal Bureau of Investigation Uniform Crime Reports

Data from 2013-2015 on violent crime and property crime rates were downloaded from the Federal Bureau of Investigation website (<http://www.fbi.gov/stats-services/crimestats>). Crime data were based on the average rates of three years from 2013 to 2015. However, when crime data were missing in any one year, the rates were based on the average of two years. We reported crime rates just one year when crime data were missing of any two years. Crime rate indicators with missing data are

reported as NA (not available) in the community profiles when crime data were missing in all three years.

U.S. Environmental Protection Agency AirCompare

The AirNow website of the U.S. Environmental Protection Agency provides measures air quality with the Air Quality Index (AQI) with scores ranging from 0 to 500. Data and Forecasts are provided by the Massachusetts Department of Environmental Protection Higher AQI values reflect greater levels of air pollution and a greater health concern. *AirCompare* provides county-level comparisons of the number of days in a year that AQI values are between 101 and 150 (code orange) and/or exceed 150 (code red) for specific subpopulations. For the subpopulation that includes older persons without specific health concerns, the total count of days includes code red days for any pollutant and code orange days for ozone and particulate matter. Data on annual number of unhealthy days for persons age 65 and older was obtained from (<https://www3.epa.gov/aircompare/#trends>). The number of unhealthy days were showing by clicking each county on the map.

Massachusetts Department of Public Health

Data on the number of currently licensed dentists was obtained from the website of health and human service (<https://checklicense.hhs.state.ma.us/MyLicenseVerification/>). By selecting search term profession for dentistry, type for dentist, and license status for current, the list of current dentist was downloaded. The Massachusetts DPH provides data on number of confirmed all intents opioid-related overdose deaths by city/town of residence for the decedent, among MA residents (https://www.mass.gov/files/documents/2018/05/22/Opioid-related%20Overdose%20Deaths%20by%20City%20Town%20-%20May%202018_0.pdf). Data was posted in May 2018; we took the numbers of death from year 2017.

Fatality Analysis Reporting System (FARS)

Data on fatality related with motor vehicle crash were downloaded from the National Highway Traffic Safety Administration (NHTSA) website (<http://www.nhtsa.gov/FARS>). The Fatality Analysis Reporting System (FARS) is annual data on traffic crashes resulting in at least one fatality occurring within 30 days of the crash. The FARS contains data derived from a census of fatal traffic crashes within 50 states, the District of Columbus, and Puerto Rico. We selected fatal crashes with at least one death of vehicle occupants (e.g. driver or passenger) or non-motorist (e.g. pedestrian) occurring in Massachusetts only from 2011 to 2015.

County Health Rankings

Data on homicide rate and firearm fatalities were obtained from the website of 2018 County Health Rankings (<http://www.countyhealthrankings.org/>).

3. Geographic Area Definitions of Communities

Data availability limited the geographic specificity of the community definitions for which healthy aging indicators could be measured. There are two major factors that constrained how finely geographic communities could be defined. The first factor is the relatively small sample size of the Massachusetts BRFSS data. The second factor is the sparse actual populations of older persons residing in some Massachusetts towns, most of which are located in Western Massachusetts. Even if data were available for all older persons in some of these towns, the populations are too small for public reporting of town-level estimates.

In this study we addressed the problems associated with sparsely populated towns by strategically aggregating some smaller towns together into larger geographic areas to increase the sample size used for estimation. The estimates derived for the larger aggregated geographic area are then reported for all individual constituent cities/towns. This is an acknowledged limitation of this study.

Geographic areas for Medicare MBSF indicators

Although the Medicare MSBF contains individual records for 100% of beneficiaries who are eligible for Medicare in at least month in a calendar year, geographic aggregation of some smaller towns in Western Massachusetts was necessary. Due to the very low prevalence rates of some disabling conditions that were added to the 2015 community profiles we modified the approach we used for obtaining 2011 Medicare indicator estimates. Under our CMS data use agreement prevalence rates for any chronic disease or disabling condition must be censored for any geographic area if either fewer than 11 resident beneficiaries have the condition, or all but 10 beneficiaries have the condition. While censoring is not a concern for most towns and MBSF indicators, we employed a two-part strategy to substantially reduce or eliminate the need for censoring indicators. This strategy entailed: (1) spatial aggregation of less-populated towns with adjacent towns to create more-populated geographic areas, and (2) stratification of chronic diseases and disabling conditions into high prevalence, low prevalence, and lowest prevalence subgroups.

Geographic areas for High Prevalence Conditions

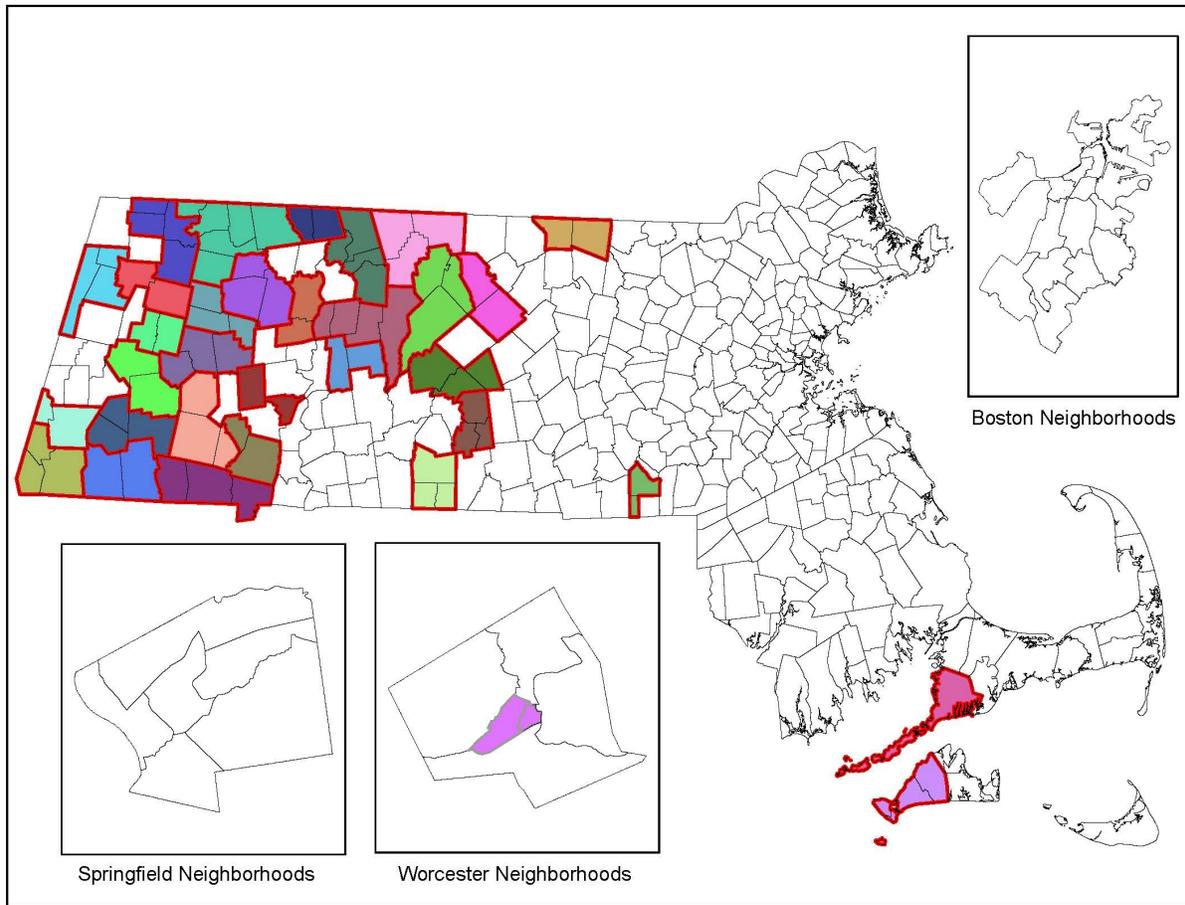
We classified 45 MBSF indicators as “high prevalence” conditions where the risk of censoring was more likely to be due to sparse population in a town rather than low prevalence of the condition among all aged Medicare beneficiaries. For high prevalence MBSF indicators we employed 322 geographic areas, 310 of which were used previously to estimate 2011 chronic disease and Medicare service utilization indicators derived from MBSF data. Most of these geographic areas were individual towns or neighborhoods within Boston, Worcester, or Springfield with at least 200 aged Medicare beneficiary residents satisfying sample selection requirements (described below) and where there were at least 11 beneficiaries with nearly all of the conditions classified as

high-prevalence. Towns with fewer than 200 such beneficiaries and/or numerous censored indicators were combined with one or more adjacent towns to form an aggregate geographic area with a combined sample size of more than 200 beneficiaries and/or at least 11 beneficiaries for nearly all indicators. Combined towns had to border each other. The aggregation of specific bordering smaller towns together was guided by the following principles:

1. It is preferable to combine a smaller town with another smaller town rather than a larger town.
2. It is preferable to combine fewer towns rather than more towns together (e.g., a two-town geographic area is preferable to a three-town geographic area).
3. It is preferable to combine towns that are located in the same geographic Primary Care Service Area as defined by the Dartmouth Atlas of Health Care.
4. It is preferable to combine towns located within the same county relative to towns in different counties.
5. It is preferable to combine towns located in the same Aging Services Access Point (ASAP) geographic service area relative towns in different ASAP areas.
6. It is preferable to limit the number of communities with censored rates to 10 or fewer.

Using these principles as a guide, there were defined 321 geographic communities in Massachusetts for estimating high prevalence Medicare MBSF indicators. Among these 321 communities there were 262 stand-alone individual cities or towns, and 27 neighborhood areas within Boston, Worcester, and Springfield. There were 32 aggregated geographic areas comprised of two or more individual towns. The individual towns that were combined together to form the 32 aggregated geographic areas were:(North Adams-Clarksburg-Florida-Savoy, Chesire- Windsor, Lanesborough-Hancock- New Ashford, Hinsdale-Peru, Beckett-Washington, Monterey-Tyringham-Otis, Alford-Great Barrington, Egremont- Sheffield- Mount Washington, New Marlborough-Sandisfield, Monroe-Rowe-Heath-Charlemont-Colrain-Hawley, Bernardston-Leyden, Northfield-Gill-Erving-Wendell, Orange-Warwick-Royalston, Athol-Petersham-Phillipston, Ashfield-Buckland-Conway, Deerfield-Whately, Shutesbury-Sunderland-New Salem-Leverett, Plainfield-Cummington-Ghoshen, Chesterfield-Middlefield-Worthington, Westhampton-Easthampton, Amherst-Pelham, Chester-Blandford-Russell, Granville-Southwick-Tolland, Brimfield-Wales-Holland, East Brookfield-Brookfield-North Brookfield, New Braintree-Hardwick-Oakham, Hubbardston-Templeton, Ashby-Townsend, Millvale-Mendon, Gosnold-Falmouth, Aquinnah-West Tisbury-Chilmark, Montgomery-Westfield). The same common value for MBSF indicators is reported in the community profiles of towns that were combined together to form these aggregated

geographic areas. Most of these aggregated geographic areas were sparsely populated towns in Western Massachusetts.



The city of Boston is disaggregated into 16 subareas that correspond to planning districts defined by the Boston Redevelopment Authority (BRA). For indicators derived from MBSF data, a cross-walk file employed in previous research by Li, Kelsey, Zhang, Lemon, Mezgebu, Boddie-Willis, & Reed (2009) and Li, Land, Zhang, Keithly, & Kelsey (2009) was used to assign beneficiaries residing in individual 5-digit zip code areas in Boston to these 16 BRA Planning Districts (i.e., Charlestown, Central, Back Bay, Fenway/Kenmore, Allston/Brighton, South End, East Boston, South Boston, Mattapan, Roxbury, South Dorchester, North Dorchester, West Roxbury, Roslindale, Hyde Park, Jamaica Plain).

The city of Worcester is disaggregated into 6 neighborhoods defined by geography researchers at Clark University. A cross-walk file between 2010 census tracts and 6 neighborhoods (i.e., Central, Downtown, East, West, South, and North Worcester) was downloaded from the Clark University website. The CMS *Master Beneficiary Summary File-A/B/D* obtained from CMS contained mail 9-digit zip codes (Zip+4 codes) for Medicare beneficiaries. We created a cross-walk file between Zip+4 codes and 2010

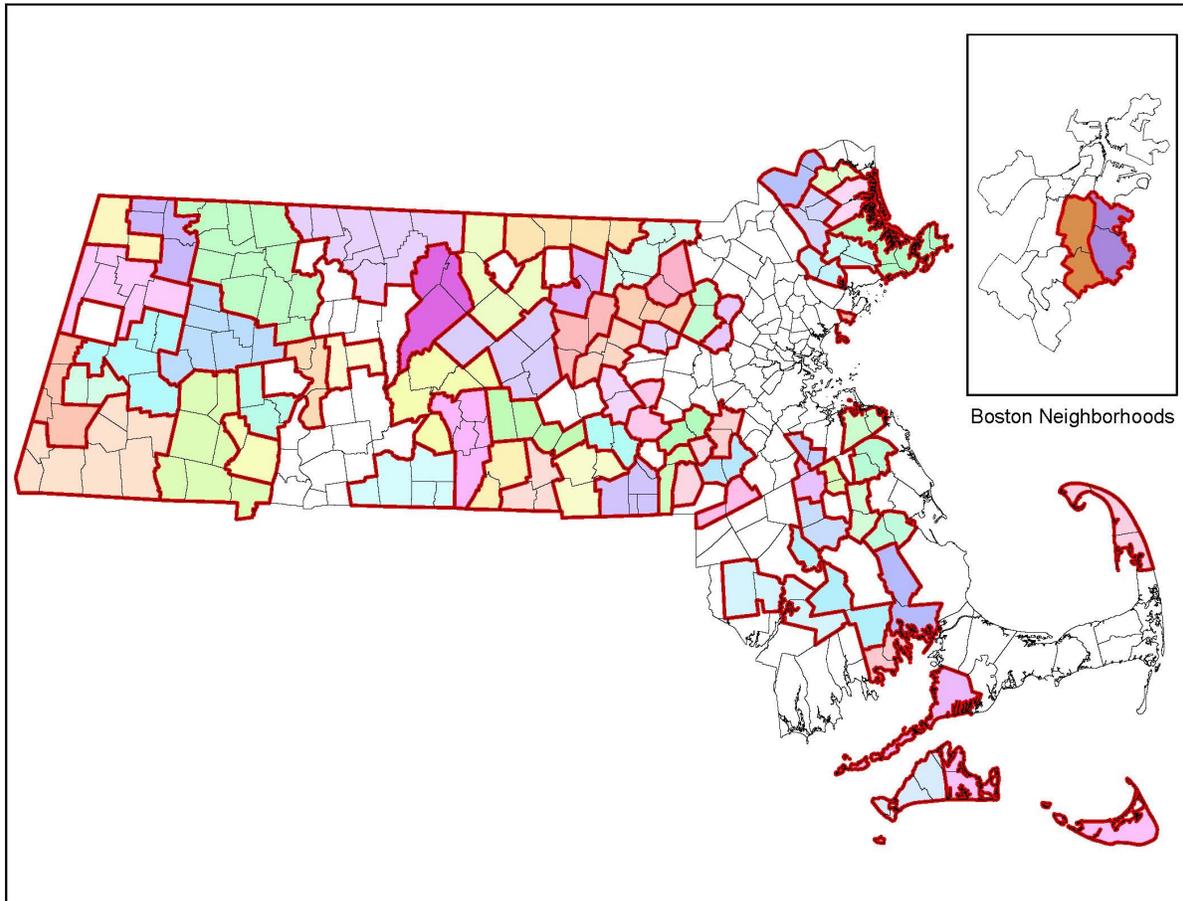
census tracts for all 5-digit zip codes in the City of Worcester from a Zip+4 data file purchased from Geolytics, Inc. This file was then merged it to the cross-walk file linking 2010 census tracts to Worcester neighborhoods. This cross-walk file was used to assign identifiers for the 6 neighborhoods in Worcester to beneficiary-level CMS Medicare data files.

The city of Springfield is disaggregated into 6 subareas based on 16 neighborhood areas defined by the Springfield Office of Planning and Economic Development. Some of the less-populated Springfield neighborhoods were combined together under a goal of forming relatively homogenous subareas with respect to socioeconomic status and racial/ethnic mix of the older population. More specifically we used ACS estimates of the education (% with less than a high school education, % with a high school education or some college, % with a college degree), income (% with incomes below the poverty level, % with annual incomes exceeding \$50,000), and racial composition (% White, % African-American, % Asian, % Other race, % Hispanic) of the population 65 years or older to evaluate homogeneity. The 6 Springfield subareas are defined as follows: Springfield A (Bay_Upper Hill_Old Hill_McKnight); Springfield B (Metro Center_Brightwood_Memorial Square_South End_Six Corners); Springfield C (Indian Orchard_Liberty Heights_East Springfield); Springfield D (Boston Road_Pine Point); Springfield E (East Forest Park_Sixteen Acres); Springfield F (Forest Park). A cross-walk file between 2010 census tracts and Springfield neighborhoods was provided to us by the Office of Planning and Economic Development of the City of Springfield. The CMS *Master Beneficiary Summary File-A/B/D* obtained from CMS contained mail 9-digit zip codes (Zip+4 codes) for Medicare beneficiaries. We created a cross-walk file between Zip+4 codes and 2010 census tracts for all 5-digit zip codes in the City of Springfield from a Zip+4 data file purchased from Geolytics, Inc. This file was then merged it to the cross-walk file linking 2010 census tracts to Springfield neighborhoods. This cross-walk file was used to assign identifiers for the 6 subareas defined by as groupings of Springfield neighborhoods to beneficiary-level CMS Medicare data files.

Geographic Areas for Low Prevalence Conditions

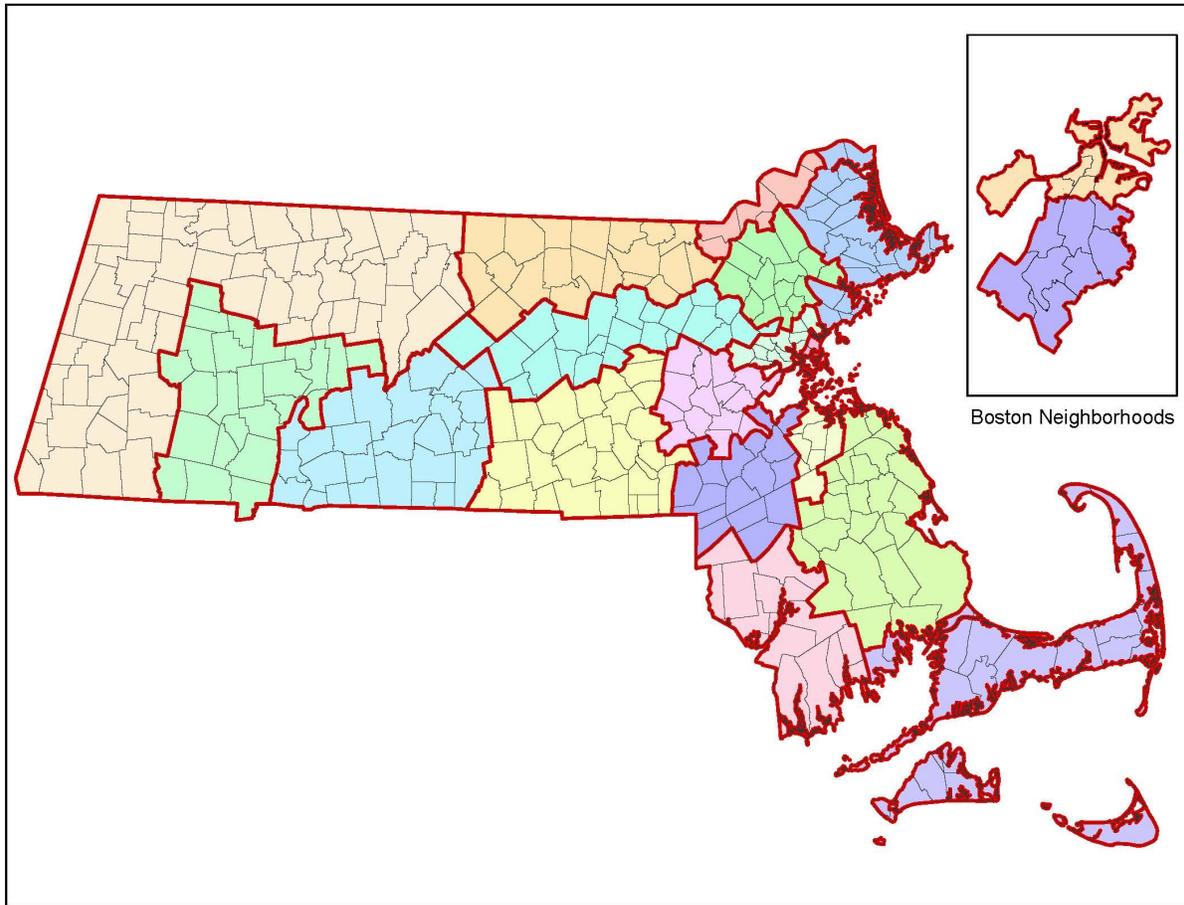
We classified 14 MBSF indicators as “low prevalence” conditions because of the relatively high frequency of censoring required for reporting these indicators for the 321 high prevalence geographic areas described above. Nearly all of the low prevalence conditions were disabling mental health conditions. For low prevalence conditions (endometrial cancer, colorectal cancer, hip fracture, lung cancer, traumatic brain injury, bipolar disorder, personality disorder, blindness and visual impairments, post-traumatic stress disorder, leukemias and other lymphomas, epilepsy, mobility impairments, migraine/chronic headache, schizophrenia and other psychotic disorders) we defined 201 larger geographic areas (see map below) by selective spatial aggregation of adjacent high prevalence geographic areas. Decisions about which high prevalence areas to combine were based on the same goals which guided the spatial aggregation of individual towns into high prevalence geographic areas, namely, relatively homogeneous geographic areas with respect to population socioeconomic status and race/ethnicity. The resulting low prevalence geographic areas are generally relatively

homogeneous. However, in a few instances it was not possible to combine areas with very similar populations without violating the requirement that the combined communities be adjacent to each other, and some heterogeneity exists. The same rate is reported in community profiles of all towns or neighborhoods grouped together for low prevalence geographic areas.



Geographic areas for Lowest Prevalence Conditions

Two disabling conditions (HIV/AIDS, autism spectrum disorders) that we report have so low prevalence rates among aged Medicare beneficiaries that rates would be censored for most of the 201 low prevalence geographic areas described above. In order to reduce the frequency of censoring for these lowest prevalence conditions, we combined low prevalence geographic areas together to form 18 geographic areas for these lowest prevalence conditions. Spatial aggregation decisions were guided by the same goals discussed above with adjacency strictly required. All individual cities and towns that are grouped together for lowest prevalence conditions have the same value reported in community profiles.



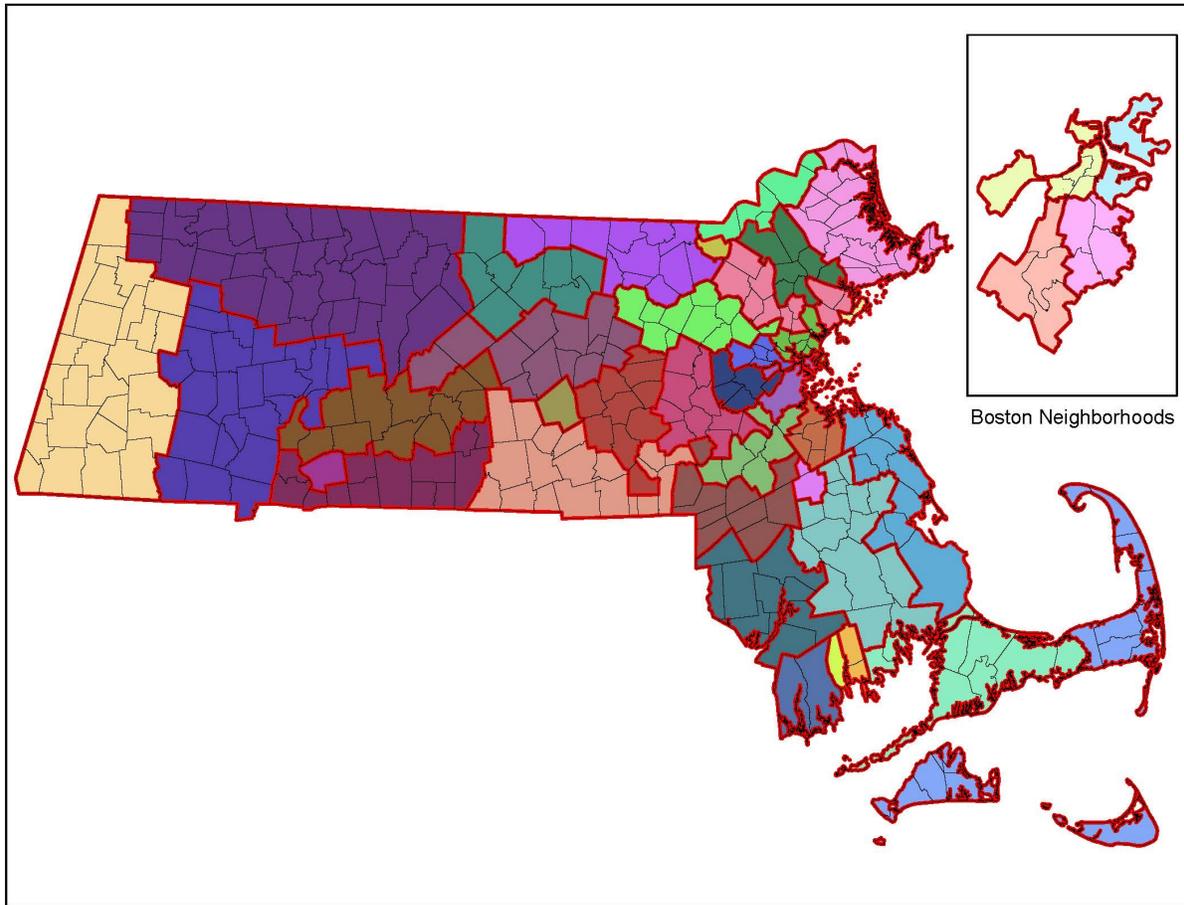
Geographic areas for BRFSS indicators

Given the small sample sizes of BRFSS respondents it was only feasible to estimate BRFSS indicators for 41 geographic subareas in the state. These geographic subareas were defined by spatial aggregation of cities and towns using a two-step process similar to that used for geographic areas estimated from CMS Medicare data. In the first step we combined selected contiguous individual cities and towns into larger geographic areas, each containing 200 or more BRFSS respondents from 2013-2015 BRFSS surveys under a goal of forming relatively homogenous subareas with respect to socioeconomic status and racial/ethnic mix of the older population. We used ACS estimates of the education (% with less than a high school education, % with a high school education or some college, % with a college degree), income (% with incomes below the poverty level, % with annual incomes exceeding \$50,000), and racial composition (% White, % African-American, % Asian, % Other race, % Hispanic) of the population 65 years or older to evaluate population homogeneity. Aggregation decisions were guided by the following principles:

- It is preferable to combine a smaller town with another smaller town rather than a larger town.

- It is preferable to combine fewer towns rather than more towns together (e.g., a two-town geographic area is preferable to a three-town geographic area).
- It is preferable to combine towns located within the same county relative to towns in different counties.
- It is preferable to combine towns located in the same Aging Services Access Point (ASAP) geographic service area relative to towns in different ASAP areas.
- It is preferable to limit the number of communities with censored rates to 5 or fewer.

In the second step we evaluated whether the preliminary BRFSS areas defined in the first step satisfied the data privacy requirements stipulated in our data use agreement with the Massachusetts Department of Public Health. For any percentage BRFSS indicator derived from a respondent-level binary (yes/no) variable there must be at least 11 respondents with the smaller count of yes versus no responses. When this reporting requirement was not met for more than 5 geographic areas, the assignments of towns bordering the problematic geographic areas were re-evaluated. One or more of these border towns were reassigned to the problematic geographic area if they rectified the censoring problem without creating censoring problems in other geographic areas. This process produced 41 geographic areas for estimating indicators from BRFSS data (see map below). All individual cities and towns combined together to form these BRFSS areas have the same value reported in their community profiles.



Geographic areas for FBI crime rate data

Crime rates were reported for individual cities and towns. We did not disaggregate crime rate data for the Cities of Boston, Worcester, and Springfield into subareas. The same city-wide crime rates are reported for all subareas within these major cities in Massachusetts.

Geographic areas for FARS crash data

FARS contains crash locations in cities / towns and counties in Massachusetts. We counted fatalities by city / town and county in Massachusetts. Note, we did not disaggregate number of fatality for the City of Boston into Boston Redevelopment Authority Planning Districts, Springfield, and Worcester.

Geographic areas for Elder Economic Standard Index and LGBT

The Elder Economic Standard Index and LGBT data were only available for the 14 counties in Massachusetts. For these indicators all cities and towns within the same county were assigned common values.

4. Geographic data sources

Geographic information is used in this report in a variety of ways, ranging from the creation of cross-walk tables between different geographic units (e.g., 5-digit zip code areas to towns) to the mapping of healthy-aging indicator estimates with GIS software. This section summarizes the sources of other geographic data used in the study.

Zip code database

MA zip code data was downloaded from <https://www.unitedstateszipcodes.org/>. There are 704 zip codes in MA, 2017. The data file contains individual records for all valid 5-digit zip codes, the city/town, county, and state it is located in, and the latitude and longitude coordinates of the centroid of the zip code area. It also contains an indicator of whether the zip code value represents a standard geographic zip code area, a point zip code (e.g., post office box), or a unique zip code assigned to certain entities such as a university.

Zip code shape file

A zip code shape file used for mapping of 5-digit zip code areas was obtained from MassGIS

The downloaded zip code base contained about 704 records for all types of 5-digit zip codes (standard, point, etc.) in Massachusetts. The Census zip code shape file only contains 538 spatial 5-digit zip code areas. Zip code maps were used to checking the validity of matches between zip codes and towns in BRFSS data and to make decisions about assignments of certain zip codes to individual towns. Some zip code areas are located in more than one town, and some small towns do not have their own zip code. Small towns without their own 5-digit zip code are aggregated together with a bordering town within the same 5-digit zip code. When multiple towns shared a 5-digit zip code, the entire zip code is assigned to the most populated town. Data from the zip code data base and zip code shape file were combined using ArcGIS ArcMap V10 software (<http://www.esri.com/>).

Town, county, and Boston neighborhood shape files

Town and county shape files for Massachusetts were downloaded from the MASS GIS web site (<http://www.mass.gov/anf/research-and-tech/it-serv-and-support/application-serv/office-of-geographic-information-massgis/datalayers/layerlist.html#polit>). A shape file for Boston neighborhoods was downloaded from a city of Boston website (<http://www.cityofboston.gov/MAPS/default.asp>). These shape files are used with

ArcGIS ArcMap V10 software to produce maps of the CMS and BRFSS health indicators listed in Table A-1.

5. Estimation Methods for Medicare MBSF indicators

Sample selection criteria

While the Medicare MBSF contains data on all Medicare beneficiaries with at least once month of Medicare Part A or B eligibility in a calendar year, estimates of chronic condition prevalence and service utilization rates can only be derived for beneficiaries who receive care from fee-for-service providers who submit claims to Medicare for reimbursement. Beneficiaries with prevalent chronic conditions are identified through algorithms applied to the diagnostic codes reported on Medicare claims over a defined surveillance period. Chronic condition prevalence is determined by the presence of one or several claims (depending on the condition) containing appropriate condition-specific diagnostic codes within surveillance period.¹ Most of these claims algorithms scan claims for both Medicare Part A and B covered services. Claims are not submitted to Medicare during any time interval in which an individual is not eligible for Medicare Part A and/or B and when a beneficiary is enrolled in a Medicare managed care plan that does not submit claims to Medicare for reimbursement. To reliably estimate chronic condition prevalence rates the sample population used for rate estimation should exclude beneficiaries for whom Medicare does not receive claims for services used. To retain such beneficiaries in the sample amounts to an implicit assumption that these beneficiaries used no Medicare covered services when they were not Medicare eligible or enrolled in a Medicare Advantage plan. Hence, rates of chronic condition prevalence and service utilization will generally be underestimated unless such beneficiaries are excluded from the estimation sample.

There are several analytic options for restricting the population sample and rate estimation under these circumstances. O'Donnell, Schneider, & Dean (2008) discuss some of the pros and cons of several options for imposing restrictions on the estimation sample. The most extreme option is to require "full coverage" where the sample is restricted to beneficiaries with a full year of Medicare Part A and B eligibility and who are never enrolled in a Medicare managed care plan during the year. While requiring full coverage ensures that claims were submitted for all Medicare services used by beneficiaries in a calendar year, such a restriction can result in underestimates of chronic condition prevalence rates because some beneficiaries with partial- year coverage have Medicare claims indicating prevalent chronic conditions in those months that claims were submitted. Under the "partial coverage" option, beneficiaries with nearly a full-year of Medicare Parts A and B eligibility and care from fee-for-service providers are retained in the sample. O'Donnell, Schneider, and Dean (2008) note that "a common recommendation is to allow for a one month break in coverage per year of

¹ The diagnostic codes used in the algorithms used to flag Medicare beneficiaries are available from the Chronic Conditions Warehouse web site (<https://www.ccwdata.org/web/guest/condition-categories>).

surveillance. This is an attractive option to avoid losing many cases with the condition of interest (i.e., known cases, as indicated in claims) due to the occurrence of only partial FFS coverage” (O’Donnell, Schneider, & Dean (2008), p 7).

In this study we chose to use this” partial-year coverage” option for estimating population-based chronic condition prevalence and service utilization rates. The sample selection criteria used to apply the partial coverage requirements differ depending on the length of the claims surveillance period employed for the chronic condition of interest. While a one-year claims surveillance period is used for most chronic conditions reported in the Medicare MBSF, for some conditions such as congestive heart failure and diabetes, the claims surveillance period is two years. The claims surveillance period is also two years for all conditions included in the MBSF Other Chronic or Potential Disabling Conditions data file. For Alzheimer’s disease or related dementias, the claims surveillance period is three years. With only two years of Medicare MBSF data (2014-2015) available to this study, we applied the two-year surveillance sample selection criteria for Alzheimer’s disease or related dementia.

Since Part A and B Medicare service utilization rates are based on single-year claims surveillance, the same sample selection criteria are employed for single-year surveillance chronic conditions and all Medicare service utilization rates except for Part D prescription drug utilization.

Determination of chronic condition prevalence: Ever versus current year

For each beneficiary the MBSF contains two flag variables for each chronic condition that indicate whether or not the Medicare claims data diagnostic requirements were met for the condition. First, there is a variable noting whether there is claims data evidence of prevalence during the *current* surveillance period only. This variable reports whether or not full-year surveillance coverage and/or diagnostic requirements from claims data were met for the chronic condition. The four categories are: (1) neither claims diagnosis nor surveillance coverage requirements were met, (2) claims diagnosis requirements were met but surveillance coverage requirements were not met, (3) claims diagnosis requirements were not met but surveillance coverage requirements were met, (4) both claims diagnosis claims and surveillance coverage requirements were met. Current-year prevalence requires that claims diagnosis requirements are met. If partial FFS coverage is used to select beneficiaries meeting surveillance coverage requirements then both (2) and (4) above are used to flag beneficiaries with claims data evidence of prevalence in the *current* year. For each beneficiary there is a second historical flag variable that contains earliest calendar year from 1999 onward that the CCW Medicare claims data diagnosis requirements for chronic condition prevalence were met.

Although chronic conditions can be managed effectively through medications, surgery, and/or diet and lifestyle changes, unlike acute illnesses they remain prevalent after onset. However, depending on the extent and type of a Medicare beneficiary’s service use in any particular calendar year, there may be no *current-year* claims data evidence of chronic condition prevalence even when such claims data evidence exists in previous

calendar years. While questions have been raised about the extent to which some prevalent chronic conditions may be missed for beneficiaries due to the brevity of the MBSF surveillance periods used to determine current-year prevalence², current-year chronic condition prevalence rates are commonly reported (e.g., see Chronic Conditions Warehouse 508 Files <https://www.ccwdata.org/web/guest/interactive-data/chronic-conditions-dashboard> , Centers for Medicare and Medicaid Services (2012)).

In this report we have chosen to define chronic condition prevalence based on whether there was any CCW claims data algorithm evidence ever since 1999 rather than only current-year 2015 algorithm evidence. There are several reasons for this choice. First, self-reports of chronic conditions are typically based on questions asking whether a doctor *ever* told a respondent that he/she had a certain condition. The “ever-met” claims algorithm definition of prevalence is more similar to the “ever” time period used in self-reports. Second, while some studies have shown that for some conditions self-reports may result in underestimated prevalence rates (e.g., Porell and Miltiades, 2001), claims-based estimates based on finite surveillance time periods are more likely to understate than overstate prevalence rates (e.g., Gorina and Kramaroy, 2011).

Since prevalence rates based on any claims data surveillance evidence since 1999 will naturally include claims evidence from 2015, the prevalence rates reported in this study are higher than those based on current-year surveillance periods. (e.g., see tables on Chronic Conditions Warehouse website (<https://www.ccwdata.org/web/guest/medicare-tables-reports>)). The reader should keep these differences in mind when comparing our reported prevalence rates, which are based on ever meeting the claims data requirements for prevalence since 1999, to rates reported elsewhere, which are commonly based on current surveillance period claims data requirements.

Specific sample selection requirements

Even though chronic condition prevalence is determined on the basis of claims evidence prior to the current surveillance period, the beneficiaries selected to be counted in the denominator for prevalence rate estimation had to meet current-year

² Gorina and Kramaroy (2011) applied Chronic Conditions Warehouse (CCW) claims data algorithms to the Medicare claims of NHANES I Epidemiologic Follow-up Study respondents who were identified as having one or more of five chronic conditions (diabetes, ischemic heart disease, COPD, dementia, arthritis) *prior* to the claims surveillance time periods. Prior-period prevalence was determined from baseline and follow-up interview self-reports by respondents, records from baseline physical examinations conducted by physicians (including X-ray results for arthritis). In the case of dementia, baseline responses to the Mental Status Questionnaire and follow-up interview questions were used to determine prevalence prior to the claims surveillance time period. Among respondents identified as having the chronic condition prior to the claims surveillance period, application of the CCW claims algorithms over defined surveillance periods identified between 17% (arthritis) and 69% (diabetes) of respondent identified as having those conditions from survey information prior to the surveillance period. While Gorina and Kramaroy (2011) acknowledge that there may be errors in pre-surveillance prevalence status based on survey data (e.g., erroneous self-reports of chronic conditions) their empirical results suggest that the CCW chronic condition surveillance time periods are more likely to be too short to identify prevalence for those chronic conditions where there is a lesser need to regularly use Medicare services for management of the condition.

surveillance rate requirements to avoid substantial under-estimation of prevalence rates because of beneficiaries enrolled in Medicare managed care plans. Below we describe the specific partial-year surveillance coverage requirements employed in rate estimation.

Single-year surveillance chronic conditions and Parts A & B service utilization

We followed the partial-year coverage requirements recommended by O'Donnell, Schneider, & Dean (2008) that differed depending upon whether or not a beneficiary survived the full calendar year. It is important to retain beneficiaries who die during the year in the estimation sample to mitigate potential biases. If a beneficiary dies on the day when a heart attack occurs he/she cannot meet full-year coverage requirement unless the heart attack occurs on December 31st and would not be counted as experiencing a heart attack. The bias of not including beneficiaries who die during the calendar may be substantial given the high medical costs experienced in the last years of life for many beneficiaries.

For all single-year surveillance chronic conditions and for all service utilization rates except Part D prescription fills and hospital readmission rates, partial-year coverage for beneficiaries alive at the end of 2015 requires that:

- a beneficiary have at least 11 months of both Medicare Part A and B eligibility and at most one month of Medicare managed care enrollment in 2015.

Beneficiaries who died in 2015 are required to have full coverage (Medicare Part A and B eligibility and no Medicare managed care enrollment) in all months that they were alive in 2015. All beneficiaries are further required to have a valid 5-digit residence zip code recorded in the 2015 Medicare MBSF for residence assignment to towns. There were 668,912 Medicare beneficiaries who met these sample selection requirements.

For the readmission rate indicator, we naturally imposed an additional condition that a beneficiary must have been hospitalized at least once during 2015. There were 121,542 Medicare beneficiaries who met this additional sample selection requirement for hospital readmissions.

Two-year surveillance chronic conditions

For all other 2-year chronic conditions, partial-year coverage for beneficiaries alive at the end of the 2015 required that:

- a beneficiary has at least 22 months of both Medicare Part A and B eligibility and at most two months of Medicare managed care enrollment over the two calendar years 2014-2015.

Beneficiaries who died in 2015 are required to meet the partial-year coverage requirements in 2014 and meet full coverage requirements in the months they were alive in 2015. Beneficiaries are also required to have a valid 5-digit residence zip code recorded in the 2015 Medicare MBSF. There were 620,940 Medicare beneficiaries who met these sample selection requirements.

Since Massachusetts residence requirements were applied to 2014 MBSF data, there are some beneficiaries with records in the 2015 MBSF who did not meet the two-year surveillance sample selection criteria because they did not live in Massachusetts in 2014. Unfortunately, these beneficiaries had to be excluded from the two-year surveillance estimation sample. If Medicare beneficiaries who recently moved to Massachusetts tend to have systematically better/worse health status than longer term resident beneficiaries, this difference will not be reflected in the town-level estimated prevalence and service utilization rates.

While beneficiaries younger than 65 years of age can be entitled to Medicare due to disability, most beneficiaries are not entitled to Medicare until they reach 65 years of age under Old Age Survivors Insurance status. Accordingly, to satisfy the one-year surveillance sample selection criteria most beneficiaries must have been 65 years old by February 1st of 2015. The two-year surveillance sample selection criteria require that such beneficiaries be 65 years old as of March 1st of 2014. While we do not make this distinction in our general descriptions of the chronic condition prevalence indicators, the prevalence rates for two-year surveillance period chronic conditions strictly pertain to an older population than the population for single-year conditions and service utilization rates. It is also possible that by employing the two-year sample selection criteria for Alzheimer's disease or related dementias (with a three-year surveillance period), this may have produced underestimates of prevalence rates for this condition.

Part D prescription drug utilization rates

In contrast to other Medicare covered services the Medicare MBSF contains summary information about Part D prescription drug utilization for both beneficiaries receiving care from fee-for-service providers and Medicare managed care enrollees. Furthermore, some Medicare beneficiaries with Parts A and B eligibility may not have opted to enroll for Part D Medicare coverage. Because of these factors, the sample selection criteria for the Part D prescription drug utilization indicator differ from that employed for other Medicare covered services.

For Part D prescription utilization, partial-year coverage for beneficiaries alive at the end of 2015 requires that:

- a beneficiary have at least 11 months of Medicare Part D coverage.

Beneficiaries who died in 2015 are required to have Medicare Part D coverage in all months they were alive in 2015. Beneficiaries are also required to have a valid 5-digit

residence zip code recorded in the 2015 Medicare MBSF. There were 645,202 Medicare beneficiaries who met these sample selection requirements.

Medicaid dual eligibility and Medicare managed care status

For our estimates of Medicare managed care enrollment status and dual eligibility for Medicare and Medicaid, no additional sample selection criteria are imposed beyond the basic age and state residence requirements used to select beneficiaries contained in the MBSF data for Massachusetts. Beneficiaries had to be 65 years or older on January 1st, 2015, eligible for Medicare for at least one month in 2015, and have a state residence code for Massachusetts. There were 1,061,183 Medicare beneficiaries who met these sample selection requirements.

One-year age-sex adjusted mortality rates

Although 2015 dates of death are reported for all beneficiaries with at least one month of Medicare eligibility regardless of managed care status, additional sample selection requirements are imposed for estimates one-year mortality rates. We also require that beneficiaries reside in the same zip code in 2014 as 2015 to mitigate any potential bias associated with beneficiaries whose move to a town in 2015 may have been motivated by health concerns in their last year of life. There were 950,483 Medicare beneficiaries who met these sample selection requirements.

Post stratification weights

Medicare beneficiaries are assigned to towns based on their 5-digit residence zip code using a cross-walk file that we created to link all valid 5-digit zip codes to a specific city/town or planning district within Boston. Because of the sample selection criteria that are employed to ensure the potential presence of Medicare claims for all sample beneficiaries during the surveillance period, the age-sex distributions of these estimation samples in towns may differ from that of all aged Medicare beneficiaries actually residing those towns. Post stratification weights for 10 age-sex classes (males 65-69, males 70-74, males 75-79, males 80-84, males 85+, females 65-69, females 70-74, females 75-59, females 80-84, females 85+) were computed for each geographic area in the state defined for respective high prevalence, low prevalence, and lowest prevalence Medicare MBSF indicators. Individual beneficiaries in age-sex groups that are under-represented (over-represented) in the town's estimation sample relative to the total town beneficiary population are assigned post-stratification weights greater than (less than 1). These weights are computed so that when these post-stratification weights are applied, the weighted age-sex distribution of the estimation sample in each town matched the actual age-sex distribution of all Medicare beneficiaries in the town.

Different town-level post-stratification weights are computed for Medicare indicators depending upon on length of the current surveillance period (single-year versus two-year), and for Medicare Part D versus Medicare Parts A & B service utilization rates. In addition, for estimates of state-level prevalence and service utilization rates, another set

of post-stratification weights were computed at the state level to ensure that the weighted age-sex distribution of the entire state estimation sample matched the actual beneficiary age-sex distribution for the state. These state-level post-stratification weights did not ensure that the age-sex distribution of the estimation sample in each town matched the town's actual beneficiary age-sex distribution. In other words, the target population for these adjustments is the state rather than the town.

The post-stratification weights for Medicare service utilization rates were applied to beneficiaries in the estimation sample after another adjustment weight was applied. This additional weight is based on the portion of the year that potential claims could have been submitted for Medicare reimbursement. This first adjustment might best be explained with an example. Beneficiary A, who was continuously entitled for Medicare Parts A and B for a full calendar year and was never enrolled in a Medicare Advantage plan, has claims over the full year showing 6 physician visits. These six visits reflect an annual physician visit rate of 6 visits per year. Consider an otherwise identical beneficiary who had six physician visits before his/her death at the end of June. The annualized rate of physician visits for this beneficiary who died before the end of the year is actually 12 visits per year rather than 6 visits per year. However, in contrast to the former beneficiary who survived the full year, the latter beneficiary who died did was only at risk for making a physician visit for one-half of a year. Hence the decedent beneficiary contributed only $\frac{1}{2}$ of a full person-year to the denominator used for calculating a mean physician visit rate for the town.

For all Medicare service utilization rate indicators, the service use reported in the MBSF for beneficiaries in the estimation sample are first annualized to reflect the expected utilization with full-year coverage (12 months). Then individual person-weights are assigned to all sample beneficiaries. These weights are equal to the fraction of the year (i.e., # months of full coverage/12) that they had full coverage. Sampled beneficiaries with full-year coverage are assigned a weight of one (12/12) and beneficiaries with less than full-year coverage are assigned a fractional weight less than one.

The post-stratification town-level weights were also computed differently for the one-year mortality rates. In this case the weights were computed so that the weighted age-sex distribution of the estimation sample in each individual town population matched the state-wide age-sex distribution of all aged Medicare beneficiaries. By computing the post-stratification weights in this manner, the one-year mortality rate in a town reflects the expected mortality rate if its age-sex beneficiary population composition matched that of the entire state.

Some caveats should be noted about what these post stratification weights do and do not do with respect to rate estimation. By applying these weights the prevalence and service utilization rate estimates are adjusted to reflect differences between the age-sex population composition of the sample and that of actual beneficiaries in the town. The age-sex distribution of all aged beneficiaries in each town contains beneficiaries who were excluded from the estimation sample because they did not have a sufficient history of fee-for-service Medicare claims. This includes the exclusion of Medicare Advantage

enrollees. If such managed care enrollees are systematically younger than beneficiaries receiving care from fee-for-service providers, younger beneficiaries in the estimation sample will be assigned larger post-stratification weights to reflect their under-representation in the town estimation sample. However, application of these post-stratification weights will not adjust health indicators to reflect any systematic unmeasured health status differences between Medicare Advantage enrollees and fee-for-service beneficiaries within the same age-sex class. Past research has consistently found that Medicare managed care enrollees tend to be healthier than their counterparts receiving care from fee-for-service providers. A recent study suggests that this still is true in the Medicare Advantage program (Morrissey, Kilgore, Becker, Smith, & Delzell 2013).

The reported healthy aging indicators derived from the Medicare MBSF strictly only reflect the health status of fee-for-service Medicare beneficiaries. For this reason we report the percentage of Medicare beneficiaries with at least two months of Medicare Advantage enrollment as a town population composition attribute. Some caution should be exercised in interpreting MBSF indicators for towns where the Medicare Advantage market penetration rate is very high.

Fixed Effects Estimation of Rates

Geographic residence dummy variables were constructed for beneficiaries in the estimation samples defined for the various MBSF indicator groups discussed above. Stata 14.0 was used to estimate separate fixed effects dummy variable ordinary least squares regressions with a suppressed constant on the full beneficiary estimation samples for each MBSF indicator noted in Tables A1 and A2. Beneficiary cases were weighted with individual population weights equal to the computed post-stratification weights for all MBSF indicators, except for Medicare service utilization rates where an additional partial-year weight adjustment was also made. The estimated dummy variable coefficients corresponding to weighted sample mean rates for towns or clusters of smaller towns. These estimated coefficients are the estimated MBSF rates reported in the main tables. Robust standard errors were estimated for the coefficient estimates. The 95% confidence intervals for these estimates are the reported margins of error for the estimates. The state-level estimates for the MBSF indicators along with their 95% confidence intervals are similarly estimated on the sample of all beneficiaries in the state estimation sample using different population weights.

The estimates for health indicators derived from Medicare MBSF data and their margins of error are reported for all towns and planning districts within Boston on the community profiles with confidence intervals available for download. We took a conservative approach in distinguishing those indicators where the difference between the town rate and the state rate is statistically significant at the 5% level. We only distinguish those indicators where the 95% confidence interval of the town estimate does not overlap with the 95% confidence interval of the state estimate as ones where the difference is estimated with enough precision so that the reported difference is unlikely to be due to chance associated with sampling variation.

6. Estimation Methods for Massachusetts BRFSS indicators

While there are some similarities in the methodologies used to obtain estimates from Medicare MBSF and Massachusetts BRFSS data, there were some important differences due to the complex survey design of the BRFSS and the much smaller respondent samples in the BRFSS.

Sample selection criteria

The selection criteria for the estimation samples used to estimate BRFSS indicators were straightforward. The estimation samples included all BRFSS respondents who were 60 years or older with a valid residence zip code or town code. These selection criteria were applied to BRFSS data from 2010 through 2015.

Assignment of respondents to geographic areas

As noted earlier, there were 41 geographic services areas defined for estimation of BRFSS indicators. Before assigning respondents to their appropriate BRFSS geographic area we examined the correspondence between the 5-digit residence zip codes and the town codes reported in the BRFSS data for all respondents selected for the estimation samples. Using a zip code-to-town crosswalk file, we identified a relatively small number of cases where the reported zip codes and towns did not match those recorded in the zip code to town cross-walk data file. After a discussion with Massachusetts Department of Public Health staff concerning these inconsistencies, we examined some cases with inconsistent zip codes to identify potential situations where the zip code or town may be more likely to be valid. First, since the data are entered by interviewers using a pull-down menu of town names, the interviewer may click on the adjacent town above or below the correct town name on the list, or click on a wrong town with a very similar name. Second, some responses about town by individuals actually living outside of a larger city such as Boston, Worcester, or Springfield may have meant that they live in the “greater area” of larger city (e.g., greater Boston area) even though they live in a town outside of the city. For example, a person living in the suburbs of Boston may report to live in Boston, meaning the greater Boston area, and report their suburban town zip code. We examined cases with inconsistent zip codes for potential situations such as these and made decisions about accepting the town or the zip code for making geographic assignments. Over the six-year period 2010-2015, there were 41,394 BRFSS respondents. The zip code correctly matched the self-reported town for 36,180 BRFSS respondents (87.4%). There were 961 respondents (2.3%) where the reported town and valid zip code failed to match where we could reasonably determine whether to accept the town or the zip code under one of the scenarios described below:

- Town accepted over zip code when portions of a zip code were located in more than one town

- Town accepted over zip code when reversal of the order of two digits in the zip code produced a valid town zip code
- Town accepted over zip code when substitution of one number produced a valid town zip code
- Zip code accepted over town when the zip code was located in an adjacent town on an alphabetical list of towns
- Zip code accepted over town over when town corresponding to the zip code had a similar sounding name
- Zip code accepted over town when the zip code is located in a town adjacent to a larger city of Boston, Worcester, or Springfield
-

For 4,220 respondents (10.2%) we either accepted the self-reported town when the zip code was missing, invalid, or did not match the self-reported town, or when the town was missing and the zip code was valid, we accepted the town corresponding to that zip code from the cross-walk file. Finally, there were 994 respondents (2.4%) with missing and/or invalid data for both their residence town and zip code who were dropped from the estimation sample.

After assigning individual BRFSS respondents to specific towns, they were subsequently assigned to the 41 geographic BRFSS areas via a cross-walk file. This procedure was modified to make assignments to the four subareas of Boston. In making those assignments, a valid Boston zip code was required because zip codes were used to defined the 16 BRA Planning Districts within Boston which were combined with to form four of the 41 BRFSS areas.

Estimation samples

The estimation samples for specific BRFSS indicators varied depending upon whether the questions were asked of all respondents every year, to all respondents every other year, to all respondents in some years but to fewer respondents in other years, to a subset of respondents based on gender (e.g., use of mammograms). Due to occasional missing data for individual respondents, the sample sizes of the estimation samples also varied among indicators when the same years of BRSS data were used for estimation. For BRFSS indicators based on three years of data (2013-2015) most of the sample sizes exceeded 10,000 respondents. Sample sizes ranged from 13,745 for the pneumonia vaccine to 16,595 for having a regular doctor. Sample sizes for indicators estimated with three years (2010, 2012, and 2014) of BRFSS data were as follows: mammography only for women (13,117) and a dentist visit within a year (21,800). Sample sizes for indicators estimated with three years (2011, 2013, and 2015) of BRFSS data were as follows: muscle strength and aerobic activity (16,051) and cholesterol screening (17,735). Table A-2 contains information about the specific years of data were used to estimate each of the BRFSS indicators.

Survey design and post –stratification weights

The BRFSS data are derived from telephone surveys of the non-institutionalized adult population in Massachusetts. Since the BRFSS has a complex survey design in with unequal probabilities of respondent selection, statistical analyses of BRFSS data require the application of design weights to account for different probabilities of selection. The BRFSS uses disproportionate stratified sampling in its landline telephone surveys where the sampling rate differs depending on telephone density. There is also geographic stratification in the Massachusetts BRFSS sampling where some geographic areas are sampled at a higher rate than other ones. The probabilities of selection differ among BRFSS respondents due to this stratification, telephone availability, type of phone (cell versus landline since 2011), the number of adults in the household, the number of telephones in the household, and rates of nonresponse by households. Since these factors can affect the representativeness of the sample data, survey design weights are produced to adjust for these factors in statistical analyses of BRFSS survey data.

In addition to these survey design weights, post stratification weights (before 2011) or raking weights (2011 and later) are computed so that summed counts of weighted BRFSS respondents match known state population totals along population characteristics such as age, sex, and race/ethnicity. The Massachusetts raking weights are also based on telephone source, education level, marital status, and renter/owner status.

The change from using post-stratification weights to raking weights and the addition of cell phone surveys as of the 2011 BRFSS introduce some issues for comparisons of indicators based on 2011 or later BRFSS data with indicators derived from earlier years of BRFSS data.³ However, the change from post-stratification to raking weights in 2011 did not really add many additional complications in this study because BRFSS data are being used to derive estimates for geographic subareas within Massachusetts. The “ready-to-use” post-stratification and raking weights provided with BRFSS data are only suitable for state-level estimates. Since we had to compute our own post-stratification weights to derive estimates for BRFSS geographic areas within the state, we decided to compute these weights the same way for BRFSS data from all years 2010-2015.⁴

Town-level population estimates for 12 age-sex classes (males 60-64, males 65-69, males 70-74, males 75-79, males 80-84, males 85+, females 60-64, females 65-69,

³ See Centers for Disease Control and Prevention (2013), Massachusetts Department of Public Health (2013), and Pierannunzi, Town, Garvin, Shaw, & Balluz (2012) for further discussion of the BRFSS sample design and changes made in 2011.

⁴ In personal communication with Carol Pierrannunzi of the Centers for Disease Control and Prevention and Anthony Roman of the University of Massachusetts Boston Survey Research Center it was suggested that it was reasonable for us to address the problem of pooling 2011 BRFSS data with earlier years by only using the supplied BRFSS survey design weights and to compute our own post-stratification weights the same way for all years of BRFSS data used. Regarding the issue of cell-phone survey respondents in 2011 we speculate that this will not have much of an effect on our rate estimation since our estimation sample is limited to BRFSS respondents 60 years or older.

females 70-74, females 75-59, females 80-84, females 85+) were obtained from the 2012-2016 American Community Survey for all cities and towns within Massachusetts and for BRA Planning Districts within Boston defined by census tracts (<http://factfinder2.census.gov>). Data for individual towns was aggregated into the 41 BRFSS geographic areas described earlier. These BRFSS area age-sex population distributions served as the target population matrix for computation of raked post-stratification weights. Post-stratification weights were computed using an iterative raking procedure in which inflation weights were computed to match by sex and then recomputed to match by age group. This process was repeated until stable post-stratification were obtained. Individual respondents in age-sex groups that were under-represented (over-represented) in the estimation sample relative to the BRFSS area census population distribution were assigned weights greater than (less than 1) so that when these post-stratification weights are applied, the weighted age-sex distribution of the estimation sample matched the 2012-2016 ACS age-sex distribution of each BRFSS area.

Different post-stratification weights are computed for groups of indicators depending upon how many years and which years of BRFSS data were pooled together for the estimation sample. As noted earlier depending upon the health indicator, different years of BRFSS data were pooled together. For state-level BRFSS estimates another set of post-stratification weights were computed at the state level to ensure that the sum of weighted age-sex counts of the entire estimation sample matched the 2012-2016 ACS age-sex distribution for the state of Massachusetts. These state-level post-stratification weights did not ensure that the age-sex distribution of the estimation sample for each BRFSS area matched the ACS age-sex population distribution for BRFSS area. In other words, the target population for these latter adjustments was the entire state rather than individual BRFSS geographic areas. The final population weights for individual BRFSS respondents are computed by multiplying the BRFSS survey design weights by our own computed raked post-stratification weights.

Fixed Effects Estimation of Rates

Geographic residence dummy variables were constructed for each respondent in the various sample populations used to estimating the set of BRFSS indicators. Because of the complex survey design of the BRFSS, a survey design effect regression procedure in Stata 14.0 “regress” was used for parameter estimation. Separate fixed effects dummy variable ordinary least squares regressions with a suppressed constant are estimated on appropriate estimation samples for all BRFSS indicators shown in Tables A-1 and A-2. Respondent cases were weighted with individual population weights equal to the BRFSS survey design weight multiplied by our computed raked post-stratification weights described above.⁵ The estimated coefficients for the geographic dummy variables from the regression models are the estimated rates for BRFSS geographic areas. The same estimated rates are reported for all individual cities and towns

⁵ Weighted ordinary least squares regression was also used to obtain estimates with robust standard errors without the standard Stata regress procedure. These estimates were virtually identical to those obtained with the Stata svy procedure.

comprising the BRFSS geographic areas reported in Table A-4. The 95% confidence intervals for these estimates reflect the margins of error of the estimates. State-level estimates for each BRFSS indicator along with their 95% confidence intervals were similarly estimated using weighted data from the full state estimation samples.

The estimates for health indicators derived from BRFSS data and their confidence intervals are reported all towns and planning districts in Boston on the community profiles with confidence intervals available for download. We take a conservative approach in distinguishing those indicators where the difference between the BRFSS geographic area rate and the state rate is statistically significant at the 5% level. We only distinguish those indicators as significant where the ASAP area 95% confidence interval does not overlap with the state 95% confidence interval as ones where there the difference between the BRFSS area and state estimates is unlikely to be due to chance associated with sampling variation. We note that fewer BRFSS indicator estimates are distinguished as differing significantly from the state estimates than was found for Medicare MBSF town-level estimates. This is a consequence of the much smaller sample populations used to estimate the BRFSS indicators.

Some caution should be exercised in interpreting differences between the BRFSS indicators reported for individual towns for several reasons. First, rates for which there is no distinction made regarding the statistical significance of the difference between the town and the state rate may be due to sampling variation. Second, data from multiple towns was pooled together to obtain estimates for the larger BRFSS geographic areas and the same estimates are reported for all towns within the geographic area. Actual BRFSS indicators are likely vary among individual towns that constitute the BRFSS areas. Unfortunately, BRFSS samples were too small to generate town-level estimates for most individual cities and towns.

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Table A-1: Massachusetts Healthy Aging Indicator Definitions

INDICATORS	DEFINITION
POPULATION CHARACTERISTICS	
Total population all ages	The number of total population of all ages.
% of total population age 60 or older	The percentage of persons 60 years or older among the total population.
Total population age 60 or older	The number of persons 60 years or older.
% of total population age 65 or older	The percentage of persons 65 years or older among the total population.
% female (65+ population)	The percentage of females 65 years or older among population aged 65 year or older.
% White (65+ population)	The percentage of persons 65 years or older reporting their race as “White” or reporting entries such as Irish, German, Italian, Lebanese, Arab, Moroccan, or Caucasian.
% African American (65+ population)	The percentage of persons 65 years or older reporting their race as “Black or African American” or reporting entries such as African American, Kenyan, Nigerian, or Haitian.
% Asian (65+ population)	The percentage of persons 65 years or older reporting their race as “Asian Indian,” “Chinese,” Filipino,” “Korean,” “Japanese,” Vietnamese,” and “Other Asian” or provide other detailed Asian responses.
% Other (65+ population)	The percentage of persons 65 years or older reporting their race as “American Indian or Alaska Native” or “Native Hawaiian or other Pacific Islander”, or reporting entries such as Navajo, Blackfeet, Inupiat, Yup’ik, or Central American Indian groups, or South American Indian groups.
% Hispanic/Latino (65+ population)	The percentage of persons 65 years or older reporting their origin as “Hispanic or Latino”.
% married (65+ population)	The percentage of persons 65 years or older reporting that they are currently married with spouse present or with spouse absent due to employment, living away from home, institutionalization, or serving away from home in the Armed Forces.
% divorced/separated (65+ population)	The percentage of persons 65 years or older reporting that they are legally divorced and who have not remarried, or they are legally separated or otherwise absent from their spouse because of marital discord.
% widowed (65+ population)	The percentage of persons 65 years or older reporting they are widows and widowers who have not remarried.

INDICATORS	DEFINITION
% never married (65+ population)	The percentage of persons 65 years or older reporting they have never been married, including people whose only marriage(s) was annulled.
% with less than high school education (65+ population)	The percentage of persons 65 years or older reporting they have completed less than 9th grade, or 9th grade to 12th grade with no diploma.
% with high school or some college (65+ population)	The percentage of persons 65 years or older reporting they have graduated from high school, attended a college but did not receive a degree, or received an associate's degree.
% with college degree (65+ population)	The percentage of persons 65 years or older reporting they received a bachelor's master's, or professional or doctorate degree.
% 60+ who are LGBT	The percentage of persons 60 years or older who did not respond "heterosexual" to the question: "Do you consider yourself to be: Heterosexual that is straight; Homosexual that is gay or lesbian; Bisexual; or Other?"
% 65+ population living alone	The percentage of persons 65 years or older reporting that they live alone.
% 65+ population who speak only English at home	The percentage of persons 65 years or older reporting that no language other than English is spoken at home.
% 65+ population who are veterans of military services	The percentage of persons 65 years or older reporting to have served in the military forces for the United States (Army, Navy, Air Force, Marine Corps, or Coast Guard) in time of war or peace.
Age-sex adjusted 1-year mortality rate	The percentage of Medicare beneficiaries 65 years or older on January 1, 2015 who lived in the same community for both 2014 and 2015 and who died in 2015 (beneficiary population is weighted to match state age-sex distribution of aged Medicare beneficiaries).
% moved within same county	The percentage of persons 65 years or older reporting to have changed residence within same county in MA since a year ago.
% moved from different county in Massachusetts	The percentage of persons 65 years or older reporting to have hanged residence between different counties in MA since a year ago.
% moved from different state	The percentage of persons 65 years or older reporting to have changed residence between states since a year ago.

INDICATORS	DEFINITION
WELLNESS and PREVENTION	
% 60+ with any physical activity last month	The percentage of persons 60 years or older who answered yes to the question- “During the past month, (other than your regular job) did you participate in any physical activities such as running, calisthenics, golf, gardening or walking for exercise?”
% 60+ met CDC guidelines for muscle-strengthening activity	The percentage of persons 60 years or older who met CDC guidelines for muscle-strengthening activity
% 60+ met CDC guidelines for aerobic physical activity	The percentage of persons 60 years or older who met CDC guidelines for aerobic physical activity
% 60+ met CDC guidelines for both types of physical activities	The percentage of persons 60 years or older who met CDC guidelines for both types of physical activities
% 60+ getting recommended hours of sleep	The percentage of persons 60 years or older reporting average hours (7 or 8 hours for age 60-64 years and 7,8,or 9 hours for age 65 years or older) of sleeping in a 24 period.
% 60+ injured with a fall in last 12 months	The percentage of persons 60 years or older reporting to have fallen at least once in the past 12 months resulting in injury (defined as causing one to limit regular activities for at least a day or to go see a doctor).
% 65+ ever had hip fracture	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating a hip/pelvic fracture since 1999. These criteria are having at least 1 inpatient or skilled nursing facility Medicare claim with appropriate diagnosis codes during a 1-year period.
% 60+ with self-reported fair or poor health status	The percentage of persons 60 years or older reporting fair or poor to question: Would you say that in general your health is: excellent, very good, fair, poor?
% 60+ with 15+ physically unhealthy days last month	The percentage of persons 60 years or older reporting at least 15 days to the question- “Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? “
% 60+ with physical exam/check-up in past year	The percentage of persons age 60 years or older who reporting seeing a doctor for a regular check-up within the past year.
% 60+ met CDC preventive health screening goals	The percentage of persons age 60 or older who were up to date on Centers for Disease Control and Prevention health screening goals for flu shot, colorectal cancer screening, pneumonia vaccine, and mammograms (women only).

INDICATORS	DEFINITION
% 60+ flu shot past year	The percentage of persons age 60 years or older who answered yes to the question- "During the past 12 months, have you had a seasonal flu shot (or seasonal flu vaccine that was sprayed in your nose [added in 2010])?"
% 65+ with pneumonia vaccine	The percentage of persons age 65 years or older who reported ever having a pneumonia vaccination.
% 60+ with shingles vaccine	The percentage of persons age 60 years or older who answered yes to the question- "A vaccine for shingles has been available since May 2006, it is called Zostavax®, the zoster vaccine, or the shingles vaccine. Have you had this vaccine?"
% 60+ with cholesterol screening	The percentage of persons age 60 years or older who had their cholesterol checked within past 5 years.
% 60+ women with mammogram within last 2 years	The percentage of women 60 years or older whose last mammogram was two years ago or less.
% 60+ with colorectal cancer screening	The percentage of persons age 60 years or older whose last proctoscopic exam was five years ago or less
% 60+ with HIV test	The percentage of persons age 60 years or older who answered yes to the question- "Have you ever been tested for HIV?"
% 60+ current smokers	The percentage of persons 60 years or older reporting to have ever smoked at least 100 cigarettes and who now smoke on some or all days.
% 60+ living in a home where smoking is not allowed	The percentage of persons 60 years or older reporting not allow to smoke in a home
% 60+ with loss of 6 or more teeth	The percentage of persons 60 years or older reporting to have had 6 or more teeth removed because of tooth decay or gum disease.
% 60+ with annual dental exam	The percentage of persons age 60 years or older who reporting visiting a dentist or dental clinic within the past year.
# dentists per 100,000 persons (all ages)	The number of professionally active dentists per 100,000 persons..
NUTRITION/DIET	
% 60+ with 5 or more servings of fruit or vegetables per day	The percentage of persons 60 years or older reporting to have eaten five or more servings of fruit or vegetables per day in the last month.
% 60+ self-reported obese	The percentage of persons 60 years or older with a body mass index of 30 or higher

INDICATORS	DEFINITION
% 65+ clinically diagnosed obese	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating obesity since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 60+ with high cholesterol	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating high cholesterol since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 60+ excessive drinking	The percentage of persons 60 years or older reporting excessive alcoholic drinking during the past month. For men excessive drinking is defined as consuming 60 or more alcoholic drinks in the past month or consuming 5 or more alcoholic drinks on at least one occasion during the past month. For women excessive drinking is defined as consuming 30 or more alcoholic drinks in the past month or consuming 4 or more alcoholic drinks on at least one occasion during the past month. One drink is equivalent to a 12-ounce beer, a 5-ounce glass of wine, or a drink with one shot of liquor.
% 65+ with poor supermarket access	The percentage of persons age 65 and over who are beyond 1 mile (in urban) or 10 miles (in rural) from supermarkets.
BEHAVIORAL HEALTH	
% 60+ with 15+ days poor mental health last month	The percentage of persons 60 years or older reporting at least 15 days to the question- "Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good?"
% 65+ with depression	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating depression since 1999. These criteria are having at least one inpatient, skilled nursing facility, home health, outpatient or Part B Medicare claim with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with anxiety disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating anxiety disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with bipolar disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating bipolar disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with post-traumatic stress disorder	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating post-traumatic stress disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with schizophrenia & other psychotic disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating schizophrenia & other psychotic disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with personality disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating personality disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
# opioid deaths (all ages)	Number of confirmed all intents opioid-related overdose deaths by city/town of residence for the decedent among Massachusetts residents in 2017

INDICATORS	DEFINITION
% 65+ with substance abuse (drug use +/- alcohol abuse)	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating drug use or alcohol abuse disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with tobacco use disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating tobacco disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
CHRONIC DISEASE	
% 65+ with Alzheimer's disease or related dementias	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating Alzheimer's disease or related dementia since 1999. These criteria are having at least one inpatient, skilled nursing facility, home health, hospital outpatient or Part B Medicare claim with appropriate diagnosis codes during a 3-year period.
% 65+ with diabetes	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating diabetes since 1999. These criteria are having at least one inpatient, skilled nursing facility, home health Medicare claims, or at least two hospital outpatient or Part B Medicare claims with the appropriate diagnosis codes during a 2-year period.
% 65+ with stroke	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating a transient ischemic attack (stroke) since 1999. These criteria are having at least one inpatient Medicare claim or at least 2-hospital outpatient or Part B Medicare claim with appropriate diagnosis codes during a 1-year period.
% 65+ with chronic obstructive pulmonary disease (COPD)	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating chronic obstructive pulmonary disease since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with asthma	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating asthma since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 65+ with hypertension	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating hypertension since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 65+ ever had a heart attack	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating an acute myocardial infarction (heart attack) since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 65+ with ischemic heart disease	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating ischemic heart disease since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health, hospital outpatient or Part B Medicare claim with appropriate diagnosis codes during a 2-year period.
% 65+ with congestive heart failure	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating congestive heart failure since 1999. These criteria are having at least one inpatient, hospital outpatient or Part B Medicare claim with appropriate diagnosis codes during a 2-year period.
% 65+ with atrial fibrillation	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating atrial fibrillation since 1999. These criteria are having at least one inpatient Medicare claim, or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with peripheral vascular disease	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating peripheral vascular disease since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with osteoarthritis/rheumatoid arthritis	The percentage of Medicare beneficiaries 65 years or older in 2011 who ever met the claims-based criteria indicating osteoarthritis/rheumatoid arthritis since 1999. These criteria are having at least 2 inpatient, skilled nursing facility, home health, hospital outpatient, or Part B Medicare claims (or any combination of claim types at least one day apart) with appropriate diagnosis codes during a 1-year period.
% 65+ with osteoporosis	The percentage of Medicare beneficiaries 65 years or older in 2011 who ever met the claims-based criteria indicating osteoporosis since 1999. These criteria are having at least one inpatient, skilled nursing facility, home health Medicare claims or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 65+ with leukemias and lymphomas	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating leukemia's and lymphomas since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with lung cancer	The percentage of male Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating lung cancer since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claims or at least 2 hospital outpatient or Part B Medicare claims (or any combination of outpatient or Part B claims at least a day apart) with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with colon cancer	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating colon cancer since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claims or at least 2 hospital outpatient or Part B Medicare claims (or any combination of outpatient or Part B claims at least a day apart) with appropriate diagnosis codes during a 1-year period.
% 65+ women with breast cancer	The percentage of female Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating breast cancer since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claims or at least 2 hospital outpatient or Part B Medicare claims (or any combination of outpatient or Part B claims at least a day apart) with appropriate diagnosis codes during a 1-year period.
% 65+ women with endometrial cancer	The percentage of female Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating endometrial cancer since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claims or at least 2 hospital outpatient or Part B Medicare claims (or any combination of outpatient or Part B claims at least a day apart) with appropriate diagnosis codes during a 1-year period.
% 65+ men with prostate cancer	The percentage of male Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating prostate cancer since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claims or at least 2 hospital outpatient or Part B Medicare claims (or any combination of outpatient or Part B claims at least a day apart) with appropriate diagnosis codes during a 1-year period.
% 65+ with benign prostatic hyperplasia	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating benign prostatic hyperplasia since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with HIV/AIDS	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating the human immunodeficiency virus and/or acquired immunodeficiency syndrome since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with hypothyroidism	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating hyperthyroidism since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 1-year period.
% 65+ with anemia	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating anemia since 1999. These criteria are having at least one inpatient, skilled nursing facility, or home health Medicare claim or at least one Part B Medicare claim with appropriate diagnosis codes during a 1-year period.
% 65+ with chronic kidney disease	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating chronic kidney disease since 1999. These criteria are having at least one inpatient, skilled nursing facility Medicare claim or at least 2 hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with liver diseases	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating liver diseases since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with fibromyalgia, chronic pain and fatigue	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating fibromyalgia, chronic pain and fatigue since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.

INDICATORS	DEFINITION
% 65+ with migraine and other chronic headache	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating migraine and other chronic headache since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with epilepsy	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating epilepsy since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with traumatic brain injury	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating traumatic brain injury since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with autism spectrum disorders	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating autism spectrum disorders since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with glaucoma	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating glaucoma since 1999. These criteria are having at least one Part B Medicare claim with appropriate diagnosis codes during a 1-year period.
% 65+ with cataract	The percentage of Medicare beneficiaries 65 years or older in 2015 who ever met the claims-based criteria indicating cataract since 1999. These criteria are having at least one Part B Medicare claims with appropriate diagnosis codes during a 1-year period.

INDICATORS	DEFINITION
% 65+ with pressure ulcer or chronic ulcer	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating pressure ulcer or chronic ulcer disease since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with 4+ chronic conditions (of 15)	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating at least 4 of 15 chronic conditions since 1999. The 15 chronic conditions include Alzheimer's disease or related dementia, asthma, atrial fibrillation, cancer (breast, colorectal, lung, and prostate), chronic kidney disease, chronic obstructive pulmonary disease (COPD), depression, diabetes, congestive heart failure, hypertension, hyperlipidemia (cholesterol) ischemic heart disease, osteoporosis, osteoarthritis/rheumatoid arthritis, and stroke.
% 65+ with no chronic conditions (of 15)	The percentage of Medicare beneficiaries 66 years or older in 2015 who never ever met the claims-based criteria indicating any of 15 chronic conditions since 1999.
LIVING WITH DISABILITY	
% 65+ with self-reported hearing difficulty	The percentage of persons age 65 or older reporting to be deaf or has serious difficulty hearing.
% 65+ with clinical diagnosis of deafness or hearing impairment	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating deafness or hearing impairment since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with self-reported vision difficulty	The percentage of persons age 65 or older reporting to be blind or has serious difficulty seeing even with corrective lenses.
% 65+ with clinical diagnosis of blindness or visual impairment	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating blindness or visual impairment since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.

INDICATORS	DEFINITION
% 65+ with self-reported cognition difficulty	The percentage of persons age 65 or older reporting cognitive difficulties (such as learning, remembering, concentrating, or making decisions) because of a physical, mental, or emotional condition.
% 65+ with self-reported ambulatory difficulty	The percentage of persons age 65 or older reporting to have a condition that substantially limits one or more basic activities, such as walking, climbing stairs, reaching, lifting, or carrying.
% 65+ with clinical diagnosis of mobility impairments	The percentage of Medicare beneficiaries 66 years or older in 2015 who ever met the claims-based criteria indicating mobility impairments since 1999. These criteria are having at least one inpatient or skilled nursing facility Medicare claim, or two hospital outpatient or Part B Medicare claims with appropriate diagnosis codes during a 2-year period.
% 65+ with self-reported self-care difficulty	The percentage of persons age 65 or older reporting to have a physical or mental health condition that has lasted at least 6 months and makes it difficult for them to take care of their own personal need, such as bathing, dressing, or getting around inside the home.
% 65+ with self-reported independent living difficulty	The percentage of persons age 65 or older reporting to have a physical, mental, or emotional condition lasting six months or more that makes it difficult or impossible to perform basic activities outside the home alone.
ACCESS TO CARE	
% Medicare managed care enrollees	The percentage of Medicare beneficiaries age 65 years or older enrolled in a Medicare managed care plan (Medicare Advantage) for at least 1 month in 2015
% dually eligible for Medicare and Medicaid	The percentage of Medicare beneficiaries age 65 years or older with at least one month of full or restricted Medicaid entitlement in 2015. (Beneficiaries with restricted Medicaid entitlement are only entitled to some Medicaid benefits (e.g., drug coverage only, and/or premium/copayments for services).
% 60+ with a regular doctor	The percentage of persons 60 years or older reporting to have a personal doctor or health care provider.
% 60+ who did not see doctor when needed due to cost	The percentage of persons 60 years or older responding yes to the question-“Was there a time during the last 12 months when you needed to see a doctor but could not due to the cost?”

INDICATORS	DEFINITION
# of primary care providers (within 5 miles)	A count of primary care provider (i.e., family practice, general practice, geriatric medicine, and internal medicine) within 5 miles of the center of the city/town.
# of hospitals (within 5 miles)	A count of short-term general hospitals within 5 miles of the center of the city/town.
# of nursing homes (within 5 miles)	A count of Medicare-certified nursing homes within 5 miles of the center of the city/town.
# of home health agencies (in same town)	A count of home health agencies serving patients living in the city/town.
# of community health centers	A count of community health centers in the city/town
# of adult day health centers	A count of adult day health centers in the city/town
# of memory cafes	A count of memory cafes in the city/town
# of dementia-related support groups	A count of dementia-rated support groups in the city/town
SERVICE UTILIZATION	
Physician visits per year	Average Part B physician office visit evaluation and management services received in 2015 by Medicare beneficiaries 65 years or older
Emergency room visits/1000 persons 65+ years per year	Average number of emergency department visits (where beneficiaries were released or admitted to a hospital) in 2015 per 1,000 Medicare beneficiaries 65 years or older.
Part D monthly prescription fills per person per year	Average number of standard 30 days supplies of a filled Part D prescriptions in 2015 by Medicare beneficiaries 65 years or older.
Home health visits per year	Average home health visits in 2015 per Medicare beneficiary 65 years or older.
Durable medical equipment claims per year	Average Part B durable medical equipment services received in 2015 by Medicare beneficiaries 65 years or older
Inpatient hospital stays/1000 persons 65+ years per year	A count of inpatient hospital discharges in 2015 per 1,000 Medicare beneficiaries 65 years or older.
Medicare inpatient hospital readmissions (as % of admissions)	The percentage of inpatient hospital discharges for Medicare beneficiaries 65 years or older which were followed by an admission to an acute care hospital for any cause within 30 days.
Skilled nursing facility stays/1000 persons 65+ years per year	A count of skilled nursing facility discharges in 2015 per 1,000 Medicare beneficiaries 65 years or older
# skilled nursing home Medicare beds/1000 persons 65+ years	The number of Medicare- certified nursing home beds in the community per 1,000 Medicare beneficiaries age 65 years or older in 2015.

INDICATORS	DEFINITION
% 65+ getting Medicaid long term services and supports	The percentage of Medicare beneficiaries age 65 years or older enrolled who had \$0 cost-sharing for Medicare Part D for at least 1 month in 2015. (Dual-eligible beneficiaries who are either nursing home residents or who receive Medicaid-financed long term supports and services have \$0 Part D cost sharing.
COMMUNITY VARIABLES & CIVIC ENGAGEMENT	
Age-friendly efforts in community	City/town that is or that is making efforts to become age-friendly
Air pollution: Annual # of unhealthy days for older adults	The number of days in 2016 where there was an Air Quality Index score classified as “code red” or “code orange for ozone or particulate matter in the county.
Open space in community	The percentage of public accessibility of recreational, conservational, historical, or cultural sites
Walkability score (0-100)	Walkability of communities based on straight-line distance to commercial and public facilities.
% of grandparents raising grandchildren	The percentage of grandparents who are financially responsible for any or all grandchildren living in the household
% of grandparents who live with grandchildren	The percentage of grandparents who are living with a grandchild in the household
# of assisted living sites	The number of assisted living sites in the community.
% of vacant homes in community	The percentage of rental and homeowner vacant housing units in community.
# of universities and community colleges	The number of universities or community colleges in the community.
# of public libraries	The number of public libraries in the community.
# of YMCAs	The number of YMCAs in the community.
% in county with access to broadband (all ages)	The percentage of persons in county with access to broadband.
% 60+ who used Internet in last month	The percentage of persons age 60 years or older who answered yes to the question- “Have you used the internet in the past 30 days?”
Voter participation rate in 2012 presidential election (age 18+)	The % of registered voters aged 18 and older who voted in the 2016 presidential election.
SAFETY	
Violent crimes / 100,000 persons	The number of violent crimes (murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault) from 2013 to 2015 known to law enforcement per 100,000 persons
Homicide rate / 100,000 persons (county)	The number of death due to homicide per 100,000 persons from 2010 to 2016.

INDICATORS	DEFINITION
# firearm fatalities (county)	The number of death due to firearms per 100,000 persons from 2012 to 2016.
Property crimes / 100,000 persons	The number of property crimes (burglary, larceny-theft, motor vehicle theft, and arson) from 2013 to 2015 known to law enforcement per 100,000 persons
% of licensed drivers who are age 61+	The percentage of persons 61 years or older who have a valid driving license.
% 65+ who own a motor vehicle	The percentage of households with a householder age 65 years or older who own one or more vehicles.
% 60+ who always drive wearing a seatbelt	The percentage of persons age 60 years or older who reporting to use seat belt always while driving a car.
# of motor vehicle fatalities involving adult age 60+ / town	The number of motor vehicle fatalities in town involving an adult age 60 or older (driver, passenger, or pedestrian) from 2011 to 2015.
# of motor vehicle fatalities involving adult age 60+ / county	The number of motor vehicle fatalities in county involving an adult age 60 or older (driver, passenger, or pedestrian) from 2011 to 2015.
Total # of all crashes involving adult age 60+/town	The number of motor vehicle crash in town involving a driver age 60 or older from 2011 to 2015.
# of senior transportation providers	Total number of transportation providers serving older adults in the community.
# of medical transportation services for older people	Total number of transportation services available to older adults living in the community that provide trips for hospitals, medical/healthcare, and dialysis centers.
# of nonmedical transportation services for older people	Total number of transportation services available to older adults living in the community that provide trips for adult daycare airport service, business, commuting, education, employment, recreation, religious, and shopping.
Summary transportation performance score	The AllTransit™ Performance Score measures more than just access to transit. It considers the performance of transit - connections to other routes, jobs accessible in a 30-minute transit ride, and the number of workers using transit to travel. All neighborhoods in cities with over 100,000 population are ranked and given a score from 1 to 10, and summed up for larger areas.
ECONOMIC VARIABLES	
% 65+ with income below the poverty level past year	The percentage of households with a householder (i.e., the person (or one of the people) in whose name the housing unit is owned or rented (maintained)) age 65 years or older with an annual family income below the appropriate official poverty threshold.

INDICATORS	DEFINITION
% 60+ receiving food stamps past year	The percentage of the households with a householder age 60 years or older received food stamps/Supplemental Nutrition Assistance Program (SNAP) benefits in the past 12 months.
% 65+ employed past year	The percentage of persons 60 years or older worked in the past year.
% households with annual income < \$20,000	The percentage of households with a householder (i.e., the person (or one of the people) in whose name the housing unit is owned or rented (maintained)) age 65 years or older with an annual income in 2010 less than \$20,000.
% households with annual income \$20,000-\$49,000	The percentage of households with a householder age 65 years or older with an annual income in 2010 between \$20,000 and \$49,000.
% households with annual income > \$50,000	The percentage of households with a householder age 65 years or older with an annual income in 2010 more than \$50,000.
% 60+ own home	The percentage of households with a householder age 60 years or older who are homeowners.
% 60+ have mortgage on home	The percentage of households with a householder age 60 years or older who have mortgage on home.
% 65+ households spend >35% of income on housing (renter)	The percentage of households with a householder age 65 years or older who spend more than 35% of income on renting a house.
% 65+ households spend >35% of income on housing (owner)	The percentage of households with a householder age 65 years or older who own the house and spend more than 35% of income on housing expense.
<i>Elder Economic Security Standard Index</i>	
Single, homeowner without mortgage, good health	Annual income needed for a single homeowner with no mortgage in good health to attain a modest standard of living in the county
Single, renter, good health	Annual income needed for a single renter in good health to attain a modest standard of living in the county
Couple, homeowner without mortgage, good health	Annual income needed for a couple who are homeowners with no mortgage in good health to attain a modest standard of living in the county
Couple, renter, good health	Annual income needed for a couple who are renters in good health to attain a modest standard of living in the county

Table 2: Years and Data Sources for Community Profile Indicators

INDICATORS	SOURCES and YEAR
POPULATION CHARACTERISTICS	
<p>Total population all ages, Population 60 years or older as a % of total population, Total population 65 years or older, % 65-74 years, 75-84 years, 85 years or older , % female</p>	<p>United States Census Bureau / American FactFinder. “B01001 : SEX BY AGE.” 2012 – 2016 <i>American Community Survey</i>. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t></p>
<p><i>Race/Ethnicity:</i></p> <p>% White, % African American, % Asian, % Other race, % Hispanic/Latino</p>	<p>United States Census Bureau / American FactFinder. “B01001A-B01001I: SEX BY AGE.” 2012 – 2016 <i>American Community Survey</i>. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t></p>
<p><i>Marital status:</i></p> <p>% married, divorced/separated, widowed, never married</p>	<p>United States Census Bureau / American Factfinder. “B12002 : SEX BY MARITAL STATUS BY AGE FOR THE POPULATION 15 YEARS AND OVER.” 2012 – 2016 <i>American Community Survey</i>. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017 <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t></p>
<p><i>Education:</i></p> <p>% with less than a high school education, high school education or some college, with college degree</p>	<p>United States Census Bureau / American FactFinder. “B15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER.” 2012 – 2016 <i>American Community Survey</i>. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017 <https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t></p>
<p>% 60+ who are LGBT</p>	<p>2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. <https://www.mass.gov/behavioral-risk-factor-surveillance></p>

INDICATORS	SOURCES and YEAR
% 65+ population living alone	United States Census Bureau / American FactFinder. "B09020: RELATIONSHIP BY HOUSEHOLD TYPE (INCLUDING LIVING ALONE) FOR THE POPULATION 65 YEARS AND OVER." 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ population who speak only English at home	United States Census Bureau / American FactFinder. "B16007: AGE BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ population who are veterans of military service	United States Census Bureau / American FactFinder. "B21001: SEX BY AGE BY VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
Age-sex adjusted 1-year mortality rate	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.cwdata.org >
Geographic Migration (65+ population) % moved within same county % moved from different county in MA % moved from different state	United States Census Bureau / American FactFinder. "B07001: GEOGRAPHICAL MOBILITY IN THE PAST YEAR BY AGE FOR CURRENT RESIDENCE IN THE UNITED STATE" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
WELLNESS and PREVENTION	
% 60+ with any physical activity last month	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ met CDC guidelines for muscle-strengthening activity	2011, 2013, 2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >

INDICATORS	SOURCES and YEAR
% 60+ met CDC guidelines for aerobic physical activity	2011, 2013, 2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ met CDC guidelines for both types of physical activities	2011, 2013, 2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ getting recommended hours of sleep	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ injured with a fall in last 12 months	2012, 2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 65+ ever had hip fracture	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.cwdata.org >
% 60+ with self-reported fair or poor health status	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with 15+ physically unhealthy days last month	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with physical exam/check-up in past year	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ met CDC preventive health screening goals	2010, 2012, 2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ flu shot past year	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 65+ with pneumonia vaccine	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >

INDICATORS	SOURCES and YEAR
% 60+ with shingles vaccine	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with cholesterol screening	2011, 2013, 2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+women with mammogram within last 2 years	2010, 2012, 2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with colorectal cancer screening	2012-2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with HIV test	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ current smokers	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ living in a home where smoking is not allowed	2012-2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with loss of 6 or more teeth	2010, 2012, 2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ with annual dental exam	2010, 2012, 2014 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
# dentists per 100,000 persons (all ages)	Massachusetts Department of Public Health. Check a license status, 2018. Web. September, 2018. < https://checklicense.hhs.state.ma.us/MyLicenseVerification/ >

INDICATORS	SOURCES and YEAR
NUTRITION/DIET	
% 60+ with 5 or more servings of fruit or vegetables per day	2011, 2013, 2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ self-reported obese	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 65+ clinically diagnosed obese	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with high cholesterol	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 60+ excessive drinking	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 65+ with poor supermarket access	Department of Agriculture Food Access Research Atlas website < https://www.ers.usda.gov/data-products/food-access-research-atlas/download-the-data/ > The data were initially released in January 2017, and updated in May 2017.
BEHAVIORAL HEALTH	
% 60+ with 15+ days poor mental health last month	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 65+ with depression	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with anxiety disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with bipolar disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with post-traumatic stress disorder	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
% 65+ with schizophrenia & other psychotic disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with personality disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
# opioid deaths (all ages)	Opioid deaths were download from the Massachusetts Department of Public Health website < https://www.mass.gov/files/documents/2018/05/22/Opioid-related%20Overdose%20Deaths%20by%20City%20TOWN%20-%20May%202018_0.pdf > Data were posted in May 2018.
% 65+ with substance abuse (drug use +/or alcohol abuse)	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with tobacco use disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
CHRONIC DISEASE	
% 65+ with Alzheimer’s disease or related dementias	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with diabetes	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with stroke	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with chronic obstructive pulmonary disease (COPD)	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with asthma	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with hypertension	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ ever had a heart attack	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
% 65+ with ischemic heart disease	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with congestive heart failure	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with atrial fibrillation	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with peripheral vascular disease	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with osteoarthritis/rheumatoid arthritis	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with osteoporosis	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with leukemias and lymphomas	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with lung cancer	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with colon cancer	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ women with breast cancer	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ women with endometrial cancer	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ men with prostate cancer	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with benign prostatic hyperplasia	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with HIV/AIDS	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
% 65+ with hypothyroidism	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with anemia	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with chronic kidney disease	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with liver diseases	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with fibromyalgia, chronic pain and fatigue	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with migraine and other chronic headache	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with epilepsy	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with traumatic brain injury	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with autism spectrum disorders	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with glaucoma	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with cataract	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with pressure ulcer or chronic ulcer	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with 4+ chronic conditions (of 15)	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with no chronic conditions (of 15)	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
LIVING WITH DISABILITY	
% 65+ with self-reported hearing difficulty	United States Census Bureau / American FactFinder. "B18102: SEX BY AGE BY HEARING DIFFICULTY" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ with clinical diagnosis of deafness or hearing impairment	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with self-reported vision difficulty	United States Census Bureau / American FactFinder. "B18103: SEX BY AGE BY VISION DIFFICULTY" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ with clinical diagnosis of blindness or visual impairment	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ with self-reported cognition difficulty	United States Census Bureau / American FactFinder. "B18104: SEX BY AGE BY COGNITIVE DIFFICULTY" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ with self-reported ambulatory difficulty	United States Census Bureau / American FactFinder. "B18105: SEX BY AGE BY AMBULATORY DIFFICULTY" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ with clinical diagnosis of mobility impairments	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
% 65+ with self-reported self-care difficulty	United States Census Bureau / American FactFinder. “B18106: SEX BY AGE BY SELF-CARE DIFFICULTY” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 65+ with self-reported independent living difficulty	United States Census Bureau / American FactFinder. “B18107: SEX BY AGE BY INDEPENDENT DIFFICULTY” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
ACCESS TO CARE	
% Medicare managed care enrollees	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% dually eligible for Medicare and Medicaid	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 60+ with a regular doctor	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
% 60+ who did not see doctor when needed due to cost	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
# of primary care providers (within 5 miles)	The number of primary care provider downloaded from < http://www.medicare.gov/physiciancompare/search.html > in June 2018 using the search term “city/town name, Massachusetts” and option for within 5 miles.
# of hospitals (within 5 miles)	The number of hospital downloaded from < http://www.medicare.gov/hospitalcompare/search.html > in July 2017 using the search term “city/town name, Massachusetts” and option for within 5 miles.
# of nursing homes (within 5 miles)	The number of home health agency downloaded from < http://www.medicare.gov/homehealthcompare/search.html > in June 2018 using the search term “city/town name, Massachusetts”.

INDICATORS	SOURCES and YEAR
# of home health agencies (in same town)	The number of home health agency downloaded from < < http://www.medicare.gov/homehealthcompare/search.html > in June 2018 using the search term “city/town name, Massachusetts”.
# of community health centers	The number of community health centers were downloaded from < < https://docs.digital.mass.gov/dataset/massgis-data-community-health-centers >
# of adult day health centers	A statewide directory of Massachusetts Adult Day Health Programs is available on the Massachusetts Adult Day Services Association (MADSA) website which includes the name, address, and contact information of Adult Day Health by region. This directory was updated in August 2016.
# of memory cafes	Available of memory cafe by city/town is provided by Jewish Family and Children’s Service website < < https://www.jfcsboston.org/Our-Services/Older-Adults/Alzheimers-Related-Disorders-Family-Support/Directory-of-Memory-Caf%C3%A9s-in-Greater-Boston >
# of dementia-related support groups	The number of dementia-related support groups were downloaded from Alzheimer’s Association website < < https://www.alz.org/manh >
SERVICE UTILIZATION	
Physician visits per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >
Emergency room visits/1000 persons 65+ years per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >
Part D monthly prescription fills per person per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >
Home health visits per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >
Durable medical equipment claims per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >
Inpatient hospital stays/1000 persons 65+ years per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < < www.ccwdata.org >

INDICATORS	SOURCES and YEAR
Medicare inpatient hospital readmissions (as % of admissions)	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
Skilled nursing facility stays/1000 persons 65+ years per year	2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
# skilled nursing home Medicare beds/1000 persons 65+ years	Medicare Nursing Home Compare December, 2018 https://data.medicare.gov/data/archives/nursing-home-compare ; 2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
% 65+ getting Medicaid long term services and supports	2014-2015 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse < www.ccwdata.org >
COMMUNITY VARIABLES & CIVIC ENGAGEMENT	
Age-friendly efforts in community	Age-friendly communities were collected from AARP, WHO, and Age-Friendly Berkshires
Air pollution: Annual # of unhealthy days for older adults	United States Environmental Protection Agency. Air Compare, 2016. Web. August 2017. < https://www3.epa.gov/aircompare/#trends >
Open space in community	Open space in community is downloaded from MassGIS data < https://docs.digital.mass.gov/dataset/massgis-data-protected-and-recreational-openspace?_ga=2.141616434.1061776114.1541713277-1612368014.1512577308 > in August 2017
Walkability score (0-100)	Walkability scores downloaded from < http://www.walkscore.com/ > in July-August, 2018 using the finder term “city/town name, Massachusetts.” The access scores, block length, and intersection measures from Street Smart Walk Score < http://www.walkscore.com/professional/street-smart.php > (Beta version) in July-August 2018 using the finder term “city/town name + MA”.

INDICATORS	SOURCES and YEAR
% of grandparents raising grandchildren	United States Census Bureau / American FactFinder. "B10050 : GRANDPARENTS LIVING WITH OWN GRANDCHILDREN UNDER 18 YEARS BY RESPONSIBILITY FOR OWN GRANDCHILDREN BY LENGTH OF TIME RESPONSIBLE FOR OWN GRANDCHILDREN FOR THE POPULATION 30 YEARS AND OVER." 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% of grandparents who live with grandchildren	United States Census Bureau / American FactFinder. "B10050 : GRANDPARENTS LIVING WITH OWN GRANDCHILDREN UNDER 18 YEARS BY RESPONSIBILITY FOR OWN GRANDCHILDREN BY LENGTH OF TIME RESPONSIBLE FOR OWN GRANDCHILDREN FOR THE POPULATION 30 YEARS AND OVER." 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
# of assisted living sites	The number of assisted living sites were retrieved in 2016 from MA Assisted Living Association < http://www.mass-ala.org/find-a-residence/ >
% of vacant homes in community	United States Census Bureau / American FactFinder. "B25002: OCCUPANCY STATUS" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
# of universities and community colleges	Number of university and community colleges in community is downloaded from MassGIS data < https://docs.digital.mass.gov/dataset/massgis-data-colleges-and-universities > in August 2018
# of public libraries	Number of public libraries in community is downloaded from MassGIS data < https://docs.digital.mass.gov/dataset/massgis-data-libraries > in August 2018
# of YMCAs	The number of YMCA was obtained from the MA YMCA website < https://www.maymca.com/find-your-y > in July 2018 by searching "Massachusetts" within 50 miles.

INDICATORS	SOURCES and YEAR
% in county with access to broadband (all ages)	The percentage of persons in county with access to broadband was retrieved in 2017 from Federal Communications Commission which was released in 2016 < https://docs.fcc.gov/public/attachments/FCC-16-6A1.pdf >
% 60+ who used Internet in last month	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >
Voter participation rate in 2012 presidential election (age 18+)	Number of voters were obtained from the wbur website < http://www.wbur.org/politicker/2016/11/08/massachusetts-election-map >
SAFETY	
Violent crimes / 100,000 persons	United States Department of Justice, Federal Bureau of Investigation. Crime in the United States, 2013-2015. Web. August 2017. < http://www.fbi.gov/stats-services/crimestats >
Homicide rate /100,000 (county)	Homicide rates were retrieved in 2018 from County Health Ranking < http://www.countyhealthrankings.org/app/massachusetts/2018/measure/factors/15/data >
# firearm fatalities (county)	The number of death due to firearms were retrieved in 2018 from County Health Ranking < http://www.countyhealthrankings.org/app/massachusetts/2018/measure/factors/148/data >
Property crimes / 100,000 persons	United States Department of Justice, Federal Bureau of Investigation. Crime in the United States, 2013-2015. Web. August 2017. < http://www.fbi.gov/stats-services/crimestats >
% of licensed drivers who are age 61+	Data was obtained from MASSDOT
% 65+ who own a motor vehicle	United States Census Bureau / American FactFinder. "B25045: TENURE BY VEHICLES AVAILABLE BY AGE OF HOUSEHOLDER" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 60+ who always drive wearing a seatbelt	2013-2015 Behavioral Risk Factor Surveillance Survey, Massachusetts Department of Health. < https://www.mass.gov/behavioral-risk-factor-surveillance >

INDICATORS	SOURCES and YEAR
# of motor vehicle fatalities involving adult age 60+ / town	National Highway Traffic Safety Administration, Fatal Accident Reporting System. Downloaded from < http://www.nhtsa.gov/FARS > in August, 2017. Data for years 2011-2015
# of motor vehicle fatalities involving adult age 60+ / county	National Highway Traffic Safety Administration, Fatal Accident Reporting System. Downloaded from < http://www.nhtsa.gov/FARS > in August, 2017. Data for years 2011-2015
Total # of all crashes involving adult age 60+/town	Data was obtained from MASSDOT.
# of senior transportation providers	The number of senior transportation providers were obtained from the Mass Ridematch website < http://www.massridematch.org/providers/ > in April 2018.
# of medical transportation services for older people	The number of medical transportation services were obtained from the Mass Ridematch website < http://www.massridematch.org/providers/ > in April 2018.
# of nonmedical transportation services for older people	The number of nonmedical transportation services were obtained from the Mass Ridematch website < http://www.massridematch.org/providers/ > in April 2018.
Summary transportation performance score	The transportation performance score was downloaded from the AllTransit data download website < https://alltransit.cnt.org/data-download/ >
ECONOMIC VARIABLES	
% 65+ with income below the poverty level past year	United States Census Bureau / American FactFinder. "B17001: "POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >
% 60+ receiving food stamps past year	United States Census Bureau / American FactFinder. "B22001: RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY PRESENCE PEOPLE 60 YEARS AND OVER FOR HOUSEHOLDS" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. < https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t >

INDICATORS	SOURCES and YEAR
% 65+ employed past year	United States Census Bureau / American FactFinder. “B23004: WORK STATUS IN THE PAST 12 MONTHS BY AGE BY EMPLOYMENT STATUS FOR THE CIVILIAN POPULATION 65 YEARS AND OVER” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
Household income (65+ householder) % households with annual income < \$20,000 % households with annual income \$20,000-\$49,999 % households with annual income > \$50,000	United States Census Bureau / American FactFinder. “B19037: AGE OF HOUSEHOLDER BY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2013 INFLATION-ADJUSTED DOLLARS)” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
% 60+ own home	United States Census Bureau / American FactFinder. “B25007: TENURE BY AGE HOUSEHOLDER” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
% 60+ have mortgage on home	United States Census Bureau / American FactFinder. “B25027: MORTGAGE STATUS BY AGE HOUSEHOLDER” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
% 65+ households spend >35% of income on housing (renter)	United States Census Bureau / American FactFinder. “B25072: AGE OF HOUSEHOLDER BY GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS” 2012 – 2016 American Community Survey. U.S. Census Bureau’s American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t

INDICATORS	SOURCES and YEAR
% 65+ households spend >35% of income on housing (owner)	United States Census Bureau / American FactFinder. "B25093: AGE OF HOUSEHOLDER BY SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS" 2012 – 2016 American Community Survey. U.S. Census Bureau's American Community Survey Office, 2016. Web. 2017. https://factfinder.census.gov/faces/nav/jsf/pages/searchresults.xhtml?refresh=t
<i>Elder Economic Security Standard Index</i>	
Single, homeowner without mortgage, good health	Elder Economic Security Index data from the University of Massachusetts Boston Center for Social and Demographic Research on Aging, August, 2017.
Single, renter, good health	
Couple, homeowner without mortgage, good health	
Couple, renter, good health	