TECHNICAL DOCUMENTATION

Overview

This report contains details about the development of the 2025 Rhode Island Healthy Aging Data report. This includes technical definitions, data sources, years of data used, and definitions of 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 Rhode Island. 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 (2020-2021) and the Behavioral Risk Factor Surveillance System (2020-2021). Population composition measures were drawn from the Five-Year American Community Survey (2018-2022) produced by the U.S. Census Bureau. These major data sources, and other data sources used for indicators representing safety, economic, and wellness variables are described below.

<u>Medicare Master Beneficiary Summary File</u>

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. 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, hospice users).

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 Rhode Island for 2020 or 2021. 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 MBSF data is their coverage of 100% of aged Medicare beneficiaries living in Rhode Island. This permits the estimation of health indicators for relatively small individual towns. These rates potentially can be updated annually. Additionally, the major shortcoming of MBSF data is 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

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 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, and 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 Rhode Island Department of Health (DPH) is responsible for collecting BRFSS data for Rhode Island. The RDH 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 Rhode Island residents. Person-level BRFSS data were obtained from the Rhode Island Department of Health for this project 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 population samples 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 cellphones, the BRFSS survey design was modified in 2011 to include both landline 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 Rhode Island 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 Rhode Island 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 2,513 in 2018 to 2,679 in 2022. This is far too small to estimate town-level rates for all 39 cities and towns in Rhode Island.

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. While most estimates were derived from pooling the five most recent years of BRFSS survey data (2018-2022), some questions used for indicator estimates are not asked every year. For these indicators, the five most recent years of data with those survey questions (e.g., 2015, 2017, 2019, 2021, or 2016, 2018, 2020, 2022) were used. Table A-2 shows the specific years of data used to derive estimates for each BRFSS indicator. Details about estimation methods are provided later on in the section describing BRFSS estimation methods.

U.S. Census Bureau American Community Survey

Data on population composition were downloaded from the U.S. Census Bureau Fact Finder website (https://data.census.gov/cedsci/). All census population estimates reported in the community profiles were derived from the 5-year American Community Survey data (2018-2022). Data was downloaded for all 39 individual cities and towns. In addition, the census tract data were downloaded and aggregated for 2 neighborhoods within the city of Providence. Each selected town was split into multiple geographic subareas.

Other Data Sources

Although most of the indicators in this data report were obtained from the CMS Beneficiary Files, the US Census Bureau ACS, and the BRFSS, additional indicators relied on additional community and county-level data sources described below:

1. Housing
    a. The number of assisted living sites per town were retrieved from (https://health.ri.gov/find/assistedliving/). Data was downloaded June 26th, 2023.
2. Cost of Living
    a. Four measures of geographic comparative cost of living were reported at the county level using the Elder 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, 2012). 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 2023 were obtained for all counties from the Elder Index Database (https://elderindex.org/). Data was accessed in March 2024.

3. Community
    a. 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. *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 obtained by clicking each county on the map. Data was accessed on July 30th, 2023.
    b. AARP Livable Communities were obtained from the AARP Network of Age-Friendly States and Communities webpage (https://www.aarp.org/livable-communities/network-age-friendly-communities/info-2014/member-list.html). Data was accessed on June 24th, 2023.
    c. The number of public universities and community colleges in a community was retrieved from the New England Commission of Higher Education. Main campuses and additional affiliated campuses were included in the count. Campuses at correctional facilities or non-public facilities were not included in the count. Data was accessed on October 5th, 2023. (https://www.neche.org/roster/).
    d. The number of public libraries, main library and branch libraries, in a community were obtained from the Ocean State Libraries Website. Libraries connected to a school were not included in our data collection. Data was accessed on June 27th, 2023. (https://oslri.org/library-locator/).
    e. The number of senior centers per town were obtained from Age Friendly Rhode Island. Data was accessed on July 5th, 2023. (https://agefriendlyri.org/tools-resources/senior-centers-rhode-island/).
    f. The number of Osher Lifelong Learning Institutes per town were obtained from (https://www.osherfoundation.org/olli_list.html). Data was collected on October 11th, 2023.
    g. Voter participation rates by town for 18 years and older for the 2020 Presidential election was obtained for cities and towns from the Rhode Island Department of State

(https://app.powerbigov.us/view?r=eyJrIjoiMWI2MDQxMzEtYmE2Ni00OTU1LTk5NjgtNzRhOTE0Yzc3YmY0IiwidCI6IjJkMGYxZGI2LWRkNTktNDc3Mi04NjVmLTE5MTQxNzVkMDdjMiJ9). Data was accessed on August 13th, 2023.

h. County-level data for 2016-2020 homicide rate per 100,000 people, 65+ deaths by suicide, and number of firearm fatalities were accessed the CDC Wonder website (https://wonder.cdc.gov/mcd.html). Mortality data are coded by each state and given to the National Center for Health Statistics through the Vital Statistics Cooperative Program. See (https://wonder.cdc.gov/wonder/help/mcd.html) for additional information.

4. Transportation
    a. Data on fatality related to 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 the state only from 2018 to 2022.
    b. The AllTransit Performance Score was obtained from the AllTransit website on September 15th, 2023. (https://alltransit.cnt.org/). Data was reported at the Census "place" level, and the average score of each place inside a town or city was reported.
5. Oral Health
    a. The number of dentists per 100,000 persons (all ages) at the county level were obtained from the Health Resources and Services Administration (HRSA). (https://data.hrsa.gov/topics/health-workforce/ahrf). Data was accessed on June 24th, 2023.
6. Behavioral Health
    a. County-level data 2016-2020 for number of drug overdose deaths (all ages) were accessed the CDC Wonder website (https://wonder.cdc.gov/mcd.html). Mortality data are coded by each state and given to the National Center for Health Statistics through the Vital Statistics Cooperative Program. See (https://wonder.cdc.gov/wonder/help/mcd.html) for additional information.
7. Caregiving
    a. The number of Alzheimer's or related dementias support groups were obtained using the Community Resource finder tool by the Alzheimer's Association and AARP. In-person, "Alzheimer's support groups" within each state searched. The number of support groups per town were assigned to each community in the state. Data was collected November 2nd, 2023. (https://www.communityresourcefinder.org/ProviderSearch/Search?ProfileDefinitionId=91&location=boston%2C+ma)
8. Access to Care

a. The number of primary care providers (PCPS), hospitals, home health agencies, nursing homes, and hospice agencies per town were obtained from the data dashboard on the Medicare website (http://www.medicare.gov/). The geographic location of each provider was obtained from the data sources listed below. The addresses of the providers were then geocoded into latitude and longitudinal points to be mapped in ArcMap 10.8. The number, or count, of providers were then aggregated to the town level in ArcMap. Primary care providers (PCPs) were obtained from the Doctors and Clinicians national downloadable file (https://data.cms.gov/provider-data/dataset/mj5m-pzi6). Primary care providers were defined as physicians with the following main specialties listed in the provider file: family practice, general practice, geriatric medicine, internal medicine. In addition, physician assistants and nurse practitioners in the above specialties were also considered as PCPs. Data on PCPs was accessed on June 20th, 2023. Number of hospitals per county was obtained from the Hospital General Information data table (https://data.cms.gov/provider-data/dataset/xubh-q36u). Data on Hospitals was accessed on June 25th, 2023. Number of home health agencies per county was obtained from the Home Health Care Agencies data table (https://data.cms.gov/provider-data/dataset/6jpm-sxkc). Data on home health agencies was accessed on July 2nd, 2023. Number of nursing homes per county was obtained from the Provider Information data table (https://data.cms.gov/provider-data/dataset/4pq5-n9py). Number of hospice agencies per county was obtained from the Hospice – Provider Data table (https://data.cms.gov/provider-data/dataset/xubh-q36u). Data was accessed on June 28th, 2023.
b. The number of community health centers were downloaded from the "Find a Health Center Tool" from the HRSA Data Warehouse. Data was accessed on July 4th, 2023. (https://findahealthcenter.hrsa.gov/).
c. The number of adult day health centers was obtained from the Commonwealth of Rhode Island Executive Office of Health and Human Services. Data was accessed on October 6th, 2023.

Rhode Island GIS Data

The RI GIS maintains an array of geographic services such as data development/distribution, image processing, cartography, spatial analysis, online mapping (https://www.rigis.org/). The city/town boundary shape file was downloaded from RI GIS.

3. Geographic Area Definitions of Communities

Data availability limited the geographic specificity of the community definitions for which some 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 RI BRFSS data. The second factor is the sparse

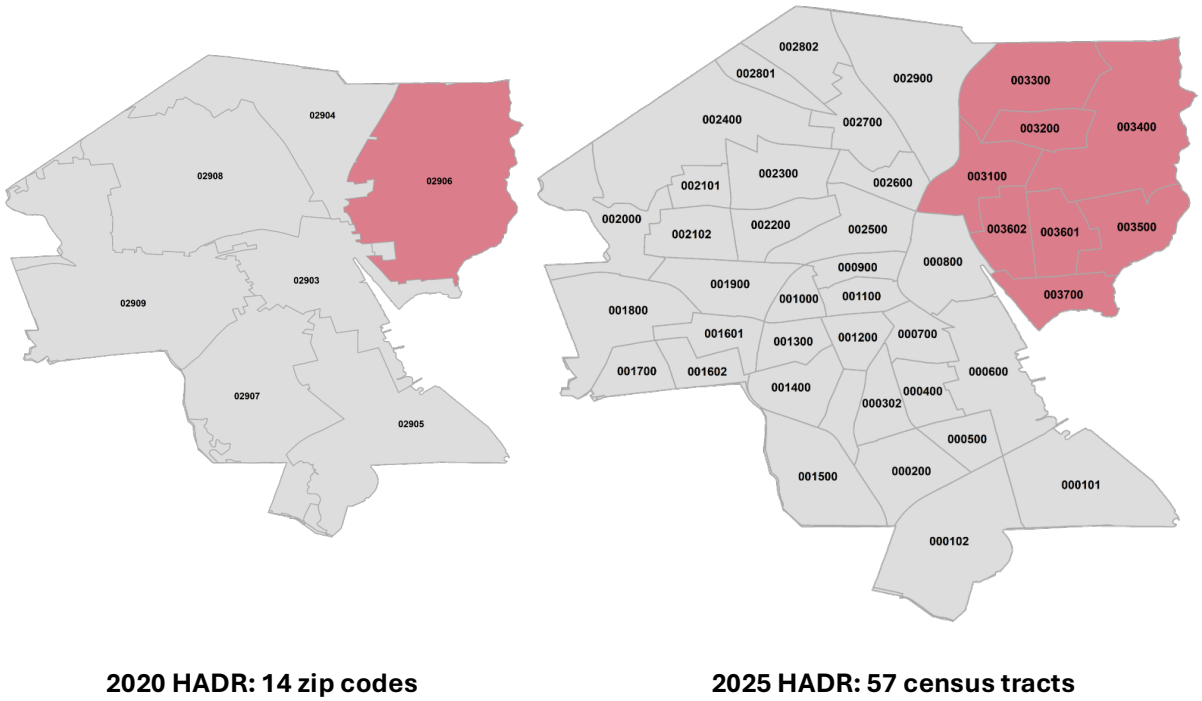
actual populations of older persons residing in some RI towns. Even if data were available for all older persons in some of these towns, some populations are too small for public reporting of town-level estimates due to privacy concerns.

In this study we addressed the problems associated with sparsely populated towns by selectively 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.

Change in Geographic Units from 2018 Report

The Providence neighborhoods boundaries slightly changed from the 2020 Rhode Island HADR due to grouping by census tracts rather than zip codes used previously. See Figures below to visualize changes in geographic units between reports.

Figure 1. *Comparison of Boston Geographic units from 2018 Healthy Aging Data Report (HADR) and 2025 HADR*



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 one month in a calendar year, geographic aggregation of some smaller towns in Rhode Island was necessary. 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 48 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 37 geographic areas. Most of these geographic areas were individual towns or neighborhoods within Providence 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).

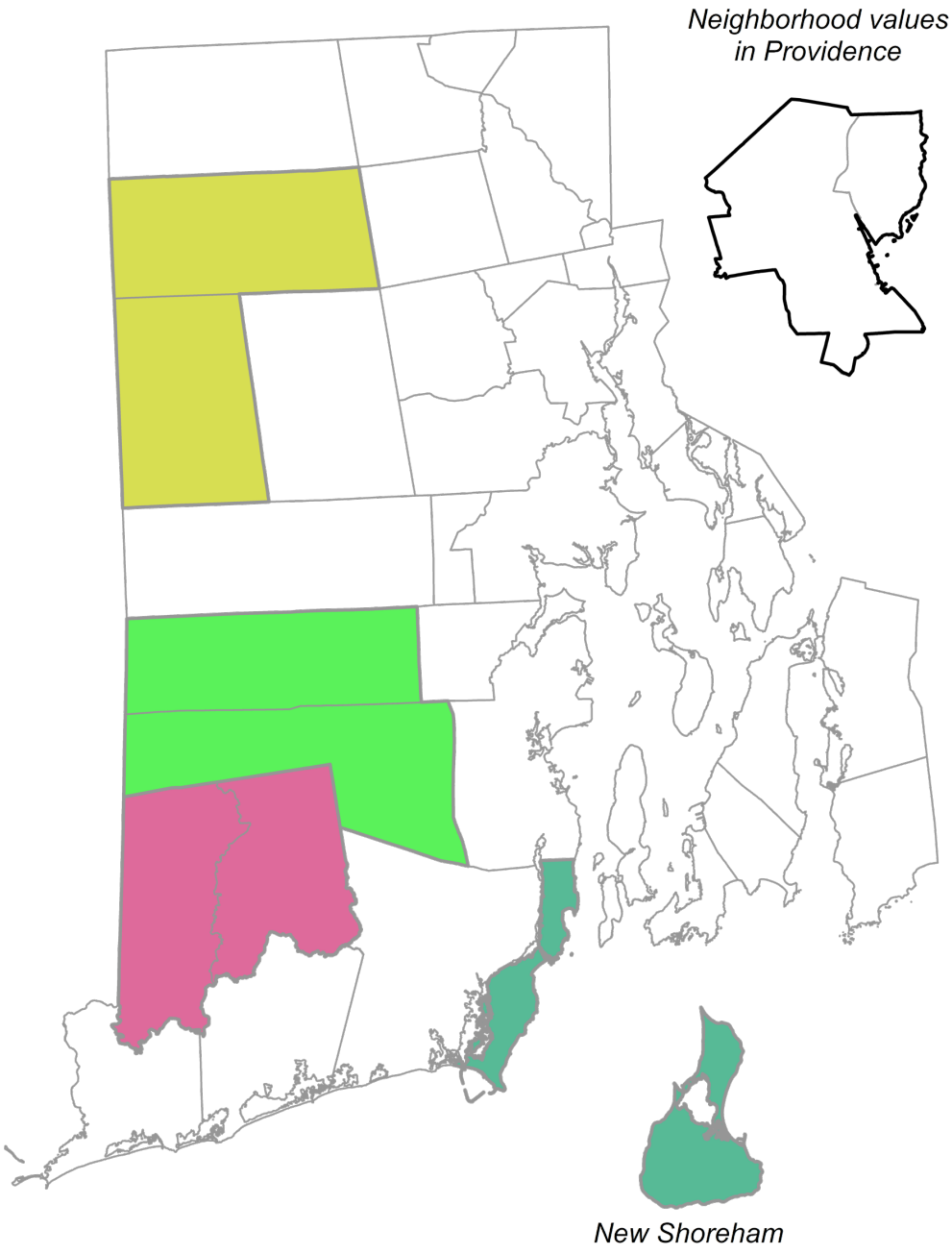
3. It is preferable to combine towns located within the same county relative to towns in different counties.

4. 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 37 geographic communities in Rhode Island for estimating high prevalence Medicare MBSF indicators. Among these 37 communities there were 31 stand-alone individual cities or towns, and 2

neighborhood areas within Providence. There were 4 aggregated geographic areas comprised of two or more individual towns. The individual towns that were combined to form the 4 aggregated geographic areas were: (Exter-West Greenwich, Foster-Glocester, Hopkinton-Richmond, Narragansett-New Shoreham). 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. Below, these 4 geographic areas are shown in different colors in Map 1.

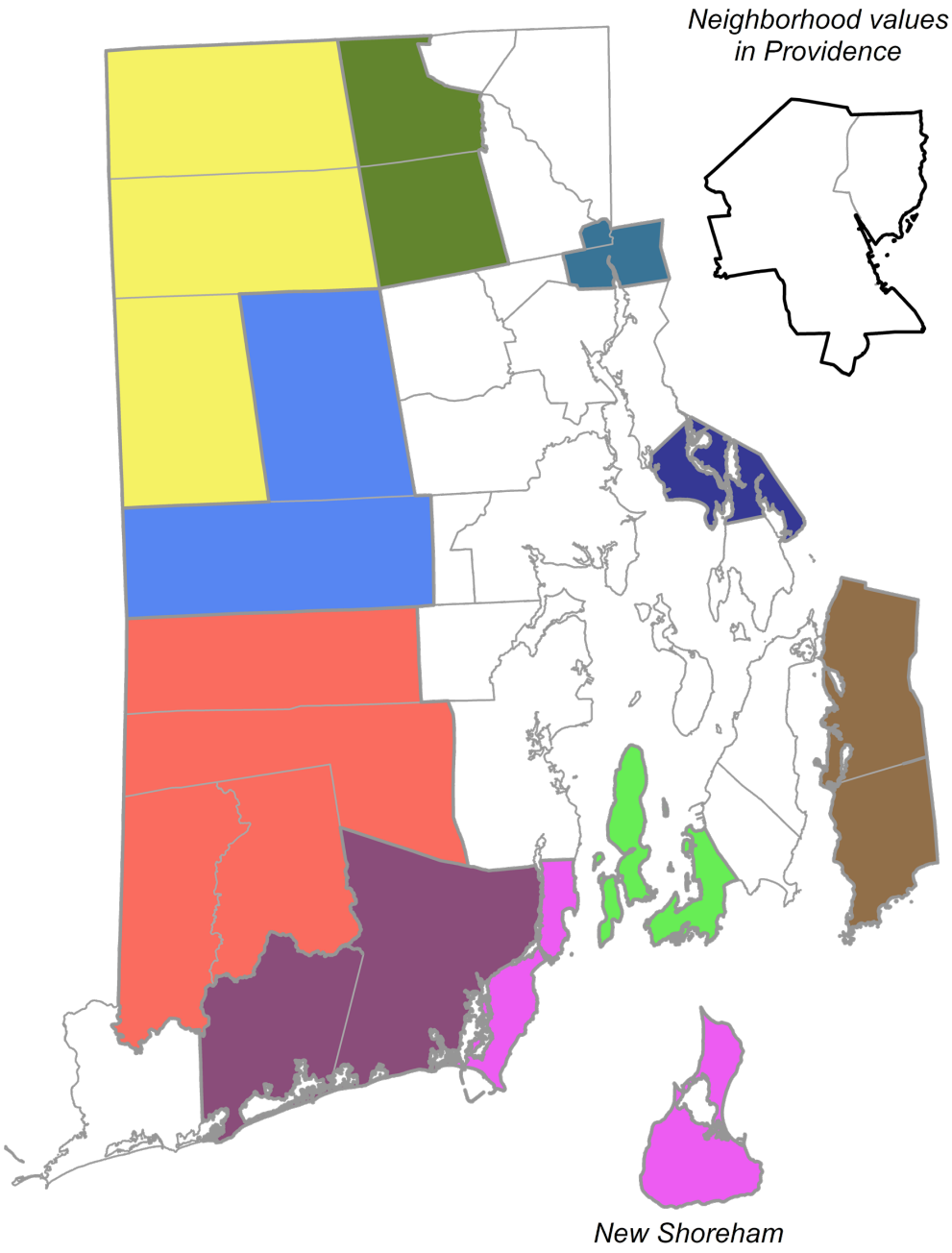
Figure 2. *Geographic Areas for High Prevalence Conditions*



Geographic Areas for Low Prevalence Conditions

We classified 28 MBSF indicators as “low prevalence” conditions because of the relatively high frequency of censoring required for reporting these indicators for the 37 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) we defined 28 larger geographic areas (see Figure 3) 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. For some indicators, the sample size is too low. To avoid data censoring, we combine geographic units, or aggregate towns, when reporting the percentage of 65+ with PTSD. 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.

Figure 3. *Geographic Areas for Low Prevalence Conditions*

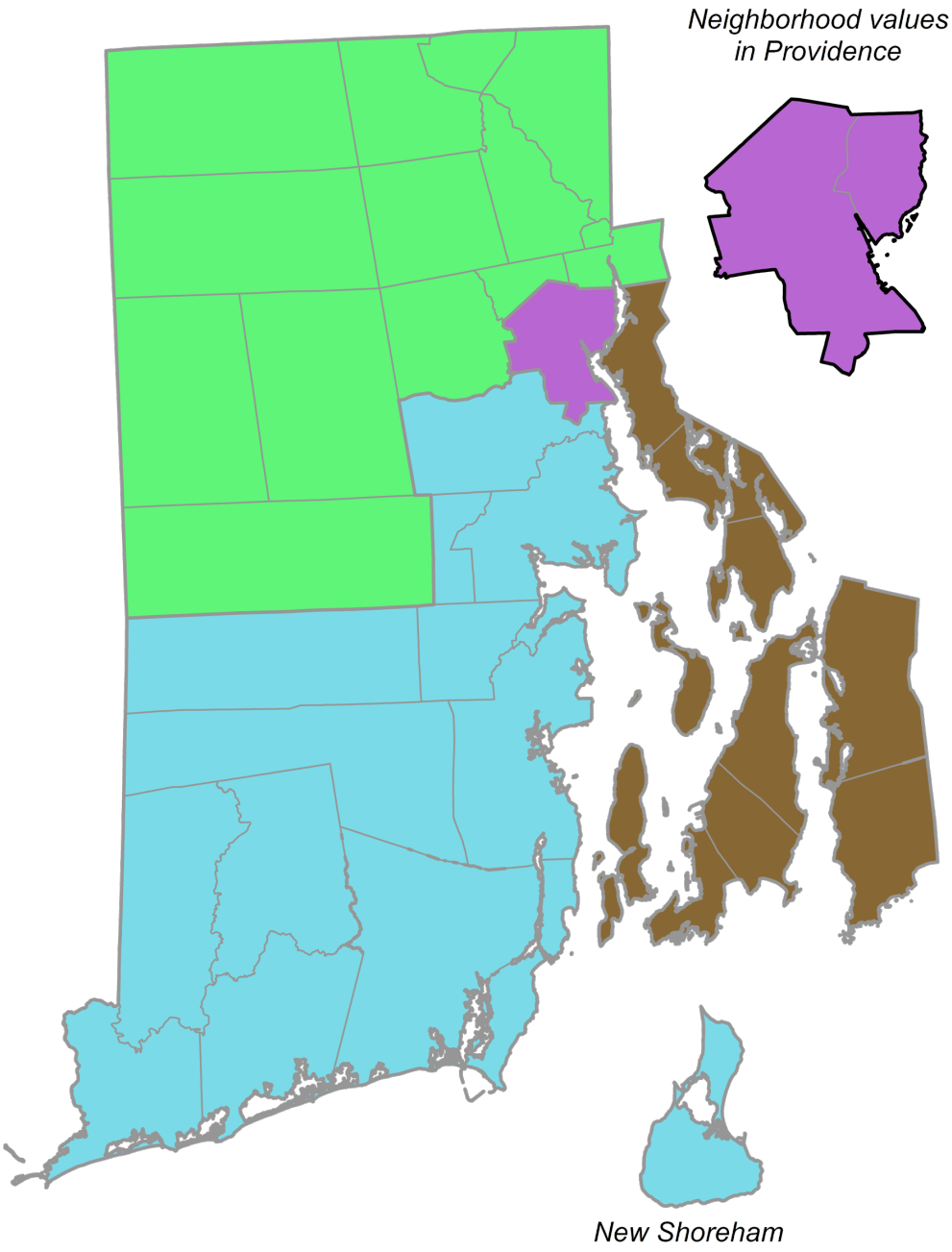


Geographic Areas for Lowest Prevalence Conditions

One disabling conditions (HIV/AIDS) that we report have so lowest prevalence rates among aged Medicare beneficiaries that rates would be censored for most of the 28 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 4 geographic areas for these lowest prevalence conditions (see Figure 4). 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 the lowest prevalence conditions have the same value reported in community profiles.

Figure 4. *Geographic Areas for Lowest Prevalence Conditions*



Geographic Areas for BRFSS Indicators

Given the small sample sizes of BRFSS respondents it was only feasible to estimate BRFSS indicators for 15 geographic subareas in the state. These geographic subareas were defined by spatial aggregation of cities and towns using a multi-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 2010-2022 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:

1. It is preferable to combine towns that are spatially contiguous to each other.

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

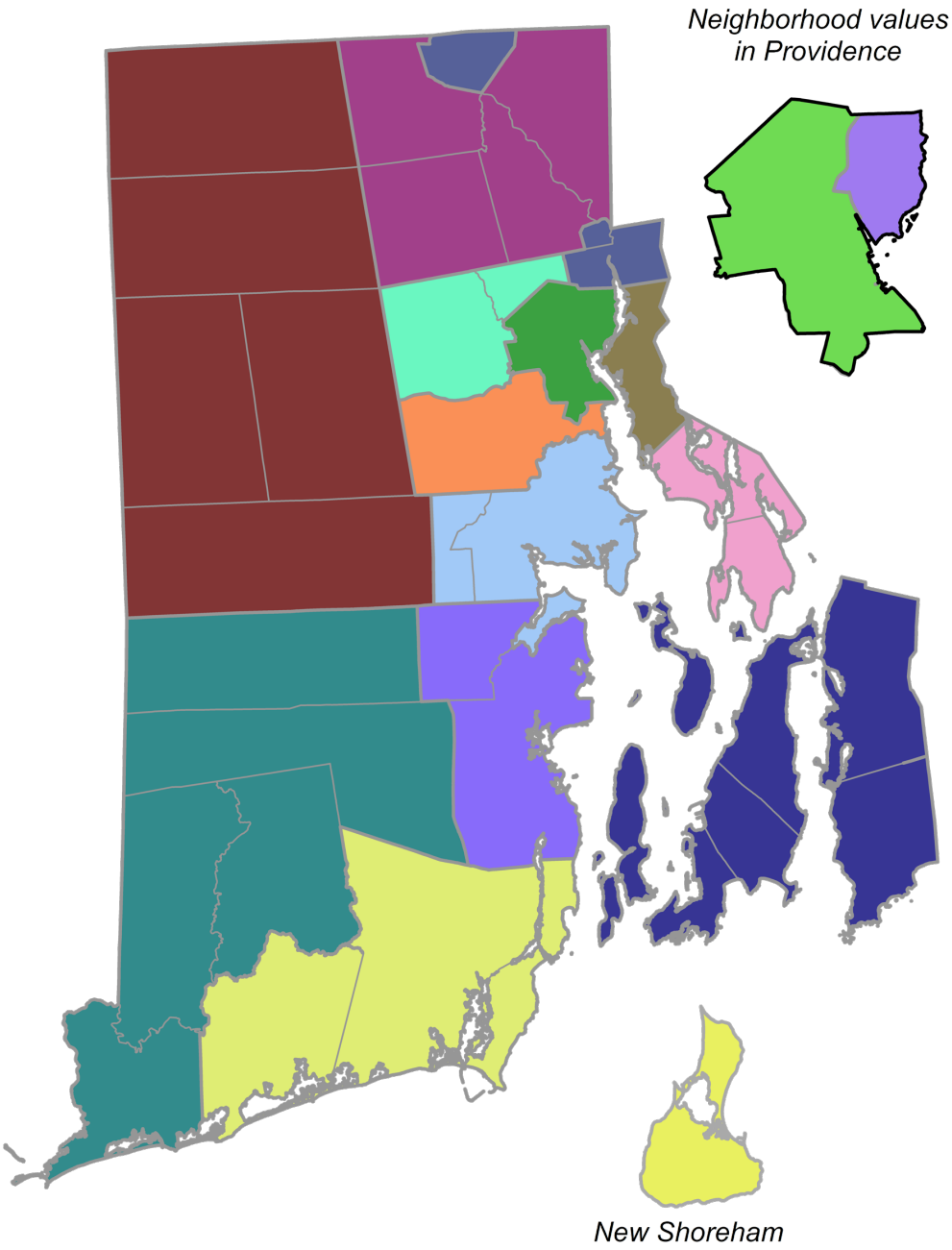
3. It is preferable to combine fewer towns rather than more towns together (e.g., a two-town geographic area is preferable to a three-town geographic area).

4. It is preferable to combine towns with more similar population composition in terms of race, education levels, and income.

5. It is preferable to combine towns located within the same county relative to towns in different counties.

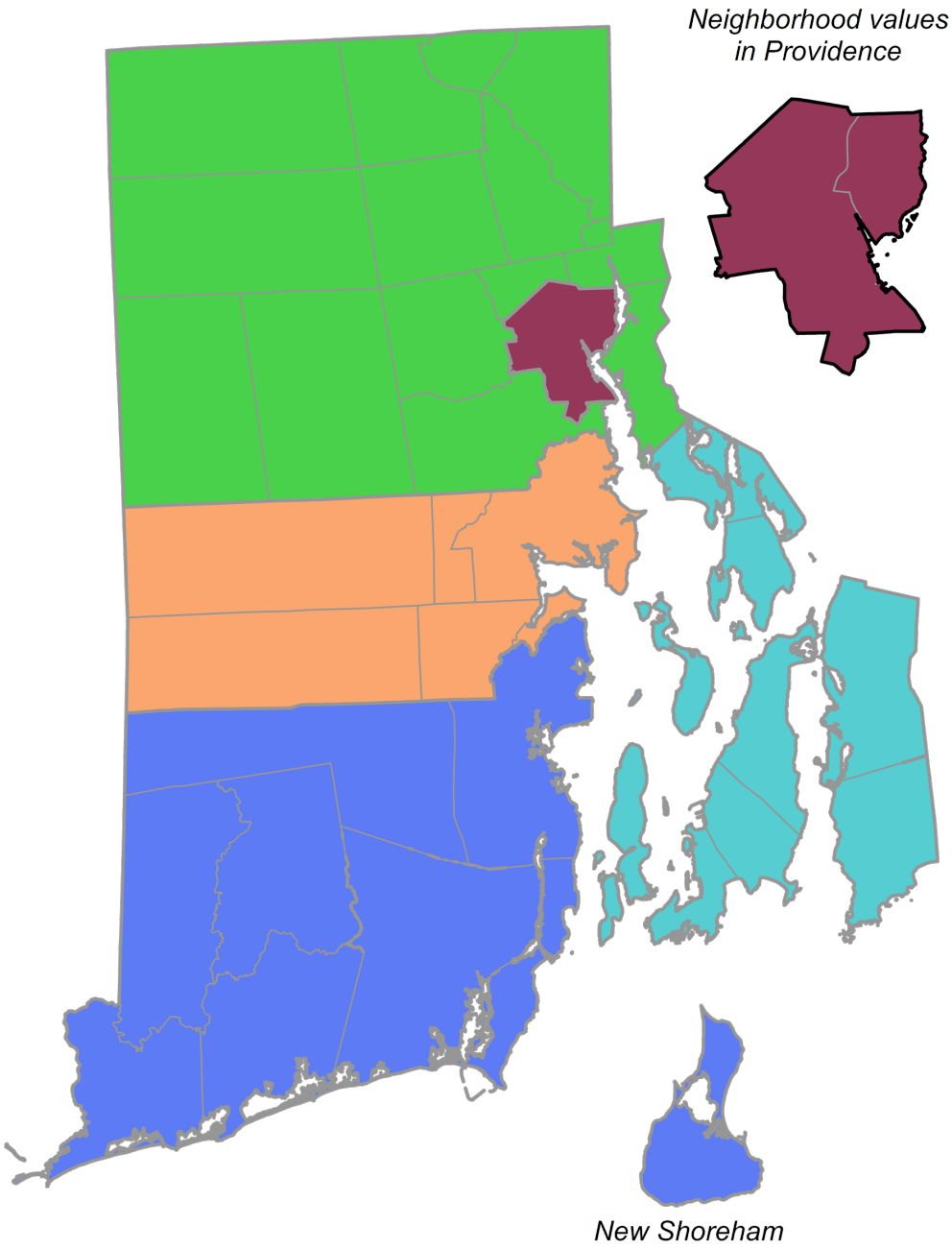
In the second step we evaluated whether the preliminary BRFSS areas defined in the first step satisfied the minimum threshold for numerator counts that was used for CMS data privacy rules. For any percentage BRFSS indicator derived from a respondent-level binary (yes/no) variable we required that there be at least 11 respondents with the smaller count of yes versus no responses. This process produced a preliminary set of 15 geographic areas for estimating indicators from BRFSS data. Map 4 showcases the 15 unique geographic areas. For some indicators, the sample size is too low. To avoid data censoring, we combine geographic units, or aggregate towns, when needed to avoid data censoring. Geographic units were combined to report the following BRFSS indicators: % 60+ current smoking, % 60+ who do not see a doctor due to cost, and % 60+ usage of marijuana.

Figure 5. *Geographic Areas for BRFSS Indicators*



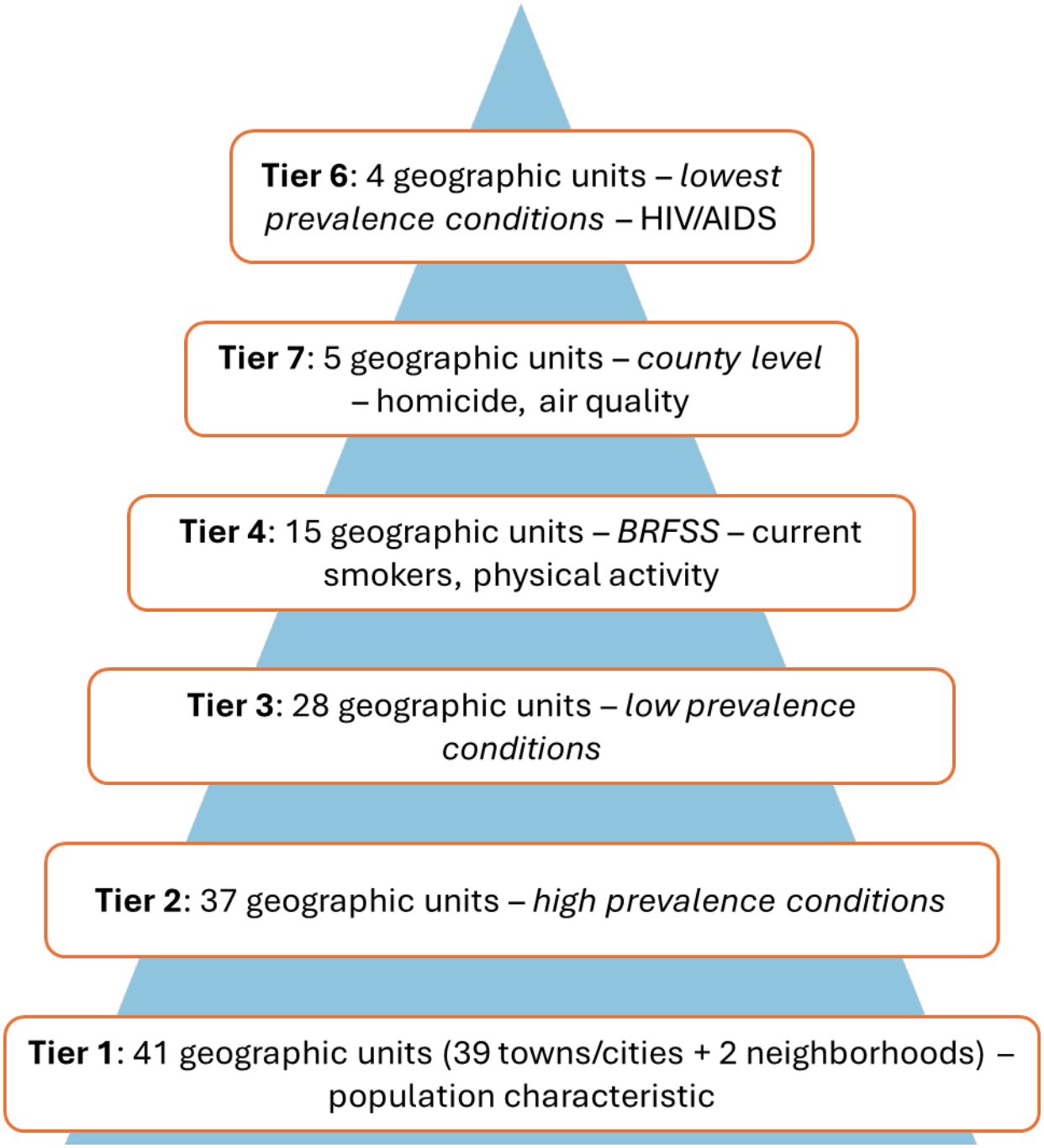
Geographic units were combined to the county level to report the following BRFSS indicators: % 60+ LGBT, % 60+ usage of e-cigarette, and % 60+ reporting driving under the influence. Due to a low sample size, Bristol and Newport counties were combined when reporting % 60+.

Figure 6. *Geographic Areas for the 60+ LGBT BRFSS Indicator*



Geographic Level of Indicators

The Healthy Aging Data Reports aim to report indicators at the community level, but some indicators were reported at a larger geographic area or county level. As described above, the BRFSS indicators are organized by geographic area of multiple cities and towns with similar socioeconomic status. Below, the indicators are organized by the geographic unit they were reported.



Town level

<u>Population characteristics</u>
The age distribution, race/ethnicity, marital status, and education level of the population were reported at the town level. In addition, the % of the 65+ population who speak only English at home and are veterans of military service were also reported at the town level.

Housing

The following housing indicators were reported at the town level: the % of 65+ population living alone, renter households who spend >35% of income on housing, and households who spend >35% of income on housing. Average household size of all ages, median house value, number of assisted living sites, and % of grandparents who live with grandchildren.

Cost of Living

All cost of living indicators were reported at the town level: the cost of living for a single homeowner without a mortgage in good health, the cost of living for a single renter in good health, the cost of living for a couple who are homeowners without a mortgage in good health, and the cost of living for a couple who are renters and in good health.

Economic

All economic indicators were reported at the town level: the % 60+ receiving food stamps in past year; % of 65+ employed last year, with income below the poverty level in last year, median annual income, and % of 65+ households with annual income below $20,000; between $20,000-$49,999, between $50,000-$99,999, and above $100,000.

Community

The following community indicators were reported at the town level: the age-sex adjusted 1-year mortality rate, AARP Age-Friendly Communities; number of senior centers, public universities and community colleges, public libraries, OLLIs; and voter participation rates in 2020 election among 18+. Moreso, the percentage of households with smartphones, only smartphones, and access to broadband, and without a computer and access to internet were reported at the town level.

Transportation

The following transportation indicators were reported at the town level: the % of 65+ who own a motor vehicle, and the AllTransit Score.

Falls

The % of 65+ who had a hip fracture was reported at the town level.

Nutrition/Diet

The following nutrition or diet indicators were reported at the town level: % 65+ with high cholesterol.

Chronic Disease

All chronic disease indicators were reported at the town level. The HADR reports the % of 65+ with the following chronic diseases: Alzheimer's disease or related dementias, anemia, asthma, atrial fibrillation, benign prostatic hyperplasia in men, breast cancer in women, cataract, chronic kidney disease, chronic obstructive pulmonary disease, colon cancer, congestive heart failure, diabetes, endometrial cancer in women, fibromyalgia, chronic pain and fatigue; glaucoma, heart attack, HIV/AIDS, hypertension, ischemic heart disease, liver disease, lung cancer, migraine and other chronic headache, osteoarthritis or rheumatoid arthritis, osteoporosis, peripheral vascular disease, pressure ulcer or chronic ulcer, prostate cancer in men, stroke, 4+ (out of 15) chronic conditions, and no chronic conditions.

Behavioral Health

The following behavioral health indicators were reported at the town level: % 65+ with substance, and tobacco use disorders.

Mental Health

The following mental health indicators were reported at the town level: the % of 65+ with depression, anxiety, post-traumatic stress disorder, and schizophrenia and other psychotic disorders.

Living with disability

All living with disability indicators were reported at the town level: the % of 65+ with self-reported hearing, vision, cognition, ambulatory, self-care, and independent living difficulty.

Caregiving

The following caregiving indicators were reported at the town level: the number of Alzheimer's caregiver support groups and % of grandparents raising grandchildren.

Access to Care

The following access to care indicators were reported at the town level: the % of 65+ dually eligible for Medicare and Medicaid, and Medicare managed care enrollees, and the number of primary care providers, hospitals, skilled nursing homes, home health agencies, community health centers, adult day centers, and hospice agencies.

Service Utilization

All service utilization indicators were reported at the town level: the number of physician visits per year, emergency room visits per 1,000 persons 65+ annually, part D monthly

prescription fills per person annually, home health visits per year, durable medical equipment claims annually, inpatient hospital stays per 1000 persons 65+ years annually, skilled nursing facility stays per 1000 persons 65+ years annually, and skilled nursing home Medicare beds stays per 1000 persons 65+ years annually. The % of 65+ getting Medicaid long term services and supports, hospice users, hospice users as % of decedents, and the % of Medicare inpatient hospital readmissions.

BRFSS area

Population characteristics

The % of 60+ population that are LGBT is reported at the BRFSS level.

Housing

The following housing indicators were reported at the BRFSS level: the % of 60+ who own home and who have a mortgage.

Wellness

All wellness indicators were reported at the BRFSS level: the % of 60+ getting the recommended hours of sleep, with any physical activity last month, met CDC guidelines for muscle-strengthening activity and aerobic physical activity, with self-reported fair or poor health status, with 15+ physically unhealthy days last month, and who reported being satisfied with life.

Community

The % of 60+ who used internet in last month is reported at the BRFSS level.

Transportation

The following transportation indicators were reported at the BRFSS level: the % of 60+ who always drive or ride wearing a seatbelt, and who drove under the influence of drinking in last month.

Falls

Two falls indicators were reported at the BRFSS level: the % of 60+ who fell within last year, and who were injured in a fall within the last year.

Prevention

All prevention indicators were reported at the BRFSS level: the % of 60+ with physical exam or check up in past year, flu shot in past year, pneumonia vaccine, shingles

vaccine, women with a mammogram within last 2 years, with colorectal cancer screening, HIV test, and who met CDC preventive health screening goals.

Nutrition/Diet

The following nutrition or diet indicators were reported at the BRFSS level: % 60+ with 5+ servings of fruit/vegetables per day, self-reported obese, stressed about buying food in past month, and with a cholesterol screening.

Oral Health

The following oral health indicators were reported at the BRFSS level: the % of 60+ with annual dental exam, dental insurance, and with loss of 6 or more teeth.

Behavioral Health

The following behavioral health indicators were reported at the BRFSS level: the % of 60+ who reported excessive drinking, using marijuana, current smoking, and using E-Cigarettes.

Mental Health

The % of 60+ with 15 days poor mental health in past month and who reported adequate emotional support is reported at the BRFSS level.

Caregiving

The % 60+ who provide care to a family or friend in past month is reported at the BRFSS level.

Access to Care

The following access to care indicators were reported at the BRFSS level: the % of 60+ with a regular doctor and who did not see a doctor when needed due to cost.

County level

Cost of Living

All cost of living indicators from the Elder Index are reported at the county level.

Community

The following community indicators are reported at the county level: the % 60+ who used internet in past month, the annual number of unhealthy days due to air pollution.

All safety and crime indicators are reported at the county level: the homicide rate per 100,000 persons, the number of firearm fatalities, and number of 65+ deaths by suicide.

Transportation

The number of fatal crashes involving adults age 60+ per county were reported at the county level.

Oral Health

The number of dentists per 100,000 persons was reported at the county level.

Behavioral Health

The number of drug overdose deaths of all ages was reported at the county level.

4. Geographic Data Sources

Geographic information is used in this report in a variety of ways, ranging from the creation of crosswalk 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 shape file

A zip code shape file used for mapping of 5-digit zip code areas was obtained from the U.S. Census Bureau based on the 2010 Census. The shape file was downloaded from the Census Bureau website (http://www.census.gov/geo/maps-data/data/tiger-line.html). The downloaded zip code database contained about 438 records for all types of 5-digit zip codes (standard, point, etc.) in Rhode Island. The Census zip code shape file only contains 283 spatial 5-digit zip code areas. Zip code maps were used to check 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 V10.8 software (http://www.esri.com/).

Zip code database

RI zip code data was downloaded from (https://www.unitedstateszipcodes.org/). There are 91 zip codes in RI, 2024. 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.

A Zip+4 data file obtained from Melissa Data Corporation (https://www.melissa.com/geodata-reference-data-sets) was used to assign Medicare 9-digit zip code data in Providence.

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. Pros and cons of several options for imposing restrictions on the estimation sample are discussed in CMS' *Technical Guidance for Calculating Medicare Population Statistics* (2018). 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

[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).

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. CMS (2018) note that "a common recommendation is to allow for a one month break in coverage per year of 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" (CMS, 2018).

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 (2016-2017) 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 are 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 the 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 prevalence[2], current-year chronic condition prevalence rates are commonly reported (e.g., see Chronic Conditions Warehouse 508 Files (https://www2.ccwdata.org/web/guest/interactive-data/ams-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 2017 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 like 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 & Miltiades, 2001), claims-based estimates based on finite surveillance time periods are more likely to understate than overstate prevalence rates (e.g., Gorina & Kramaroy, 2011).

Since prevalence rates based on any claims data surveillance evidence since 1999 will naturally include claims evidence from 2017, 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

[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 has 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.

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 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 CMS' *Technical Guidance for Calculating Medicare Population Statistics* (2018) 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 2021 requires that:

- A beneficiary has at least 11 months of both Medicare Part A and B eligibility and at most one month of Medicare managed care enrollment in 2021.

Beneficiaries who died in 2021 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 2021. All beneficiaries are further required to have a valid 5-digit residence zip code recorded in the 2017 Medicare MBSF for residence assignment to towns. There were 73,363 aged Medicare beneficiaries who met these one-year 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 2021. There were 15,645 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 2021 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 2020-2021.

Beneficiaries who died in 2021 are required to meet the partial-year coverage requirements in 2020 and meet full coverage requirements in the months they were alive in 2021. Beneficiaries are also required to have a valid 5-digit residence zip code recorded in the 2021 Medicare MBSF. There were 69,079 Medicare beneficiaries who met these sample selection requirements.

Since Rhode Island residence requirements were applied to 2020 MBSF data, there are some beneficiaries with records in the 2021 MBSF who did not meet the two-year surveillance sample selection criteria because they did not live in Rhode Island in 2020. Unfortunately, these beneficiaries had to be excluded from the two-year surveillance estimation sample. If Medicare beneficiaries who recently moved to Rhode Island 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 2021. The two-year surveillance sample selection criteria require that such beneficiaries be 65 years old as of March 1st of 2020. 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 2017 requires that:

- A beneficiary has at least 11 months of Medicare Part D coverage.

Beneficiaries who died in 2021 are required to have Medicare Part D coverage in all months they were alive in 2021. Beneficiaries are also required to have a valid 5-digit residence zip code recorded in the 2021 Medicare MBSF. There were 152,937 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, dual eligibility for Medicare and Medicaid, and Medicaid-financed use of long-term services and supports (LTSS), 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 Rhode Island. Beneficiaries had to be 65 years or older on January 1st, 2021, eligible for Medicare for at least one month in 2021, and have a state residence code for Rhode Island. There were 203,997 Medicare beneficiaries who met these sample selection requirements.

One-year age-sex adjusted mortality rates

Although 2021 dates of death were 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 2020 as 2021 to mitigate any potential bias associated with beneficiaries whose move to a town in 2021 may have been motivated by health concerns in their last year of life. There were 182,442 Medicare beneficiaries who met these sample selection requirements.

Single-year surveillance hospice utilization rates

For all single-year surveillance hospice utilization rates, partial-year coverage for beneficiaries alive at the end of 2021 requires that:

- A beneficiary has at least 11 months of both Medicare Part A and B eligibility and at most one month of Medicare managed care enrollment in 2021.

Beneficiaries who died in 2021 are required to have full coverage (Medicare Part A and B eligibility and at least one month of Medicare managed care enrollment) in all months that they were alive in 2021. There were 177,935 aged Medicare beneficiaries who met these one-year sample selection requirements.

Two-year surveillance hospice utilization rates among deceased beneficiaries

For all two-year surveillance hospice utilization rates, partial-year coverage for beneficiaries died in 2020 or 2021 requires 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 2020-2021.

Beneficiaries who died in 2020 or 2021 are required to meet the partial-year coverage requirements in 2016 and meet full coverage requirements in the months they were alive in 2021. Beneficiaries are also required to have a valid 5-digit residence zip code recorded in the 2020 and 2021 Medicare MBSF. There were 16,841 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. 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 in 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 the 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 ½ 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 utilization 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).

Also, although the post-stratification town-level weights were also computed for the hospice utilization rates, we could not apply the post-stratification town-level weights for estimation of median day of hospice utilizations and median payment of hospice utilizations due to the fact that STATA 18.0 are not allowed to add the weighting factors.

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 18.0 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 correspond 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 were reported for all towns and neighborhoods within Providence 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 Rhode Island BRFSS Indicators

While there are some similarities in the methodologies used to obtain estimates from Medicare MBSF and RI 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 2022.

Assignment of Respondents to Geographic Areas

As noted earlier, there were 15 BRFSS geographic areas or regions defined for estimation of BRFSS indicators. Before assigning respondents to their appropriate BRFSS area we examined the correspondence between the 5-digit residence zip codes and the town codes reported in the BRFSS data for all respondents satisfying the age requirement for the estimation samples. Using a zip code-to-town crosswalk file described earlier, we identified a relatively small number of cases where the reported zip codes and towns did not match those recorded in the zip code cross-walk data file.

1. Respondents were assigned to the Rhode Island residence town reported in the BRFSS data.

2. If this town code was invalid or missing and the respondent's residence five-digit zip code was valid, his/her zip code was used to assign them to a city or town.

Over the twelve-year period 2010-2022, there were 35,581 BRFSS respondents. The zip code correctly matched the self-reported town for 33,712 BRFSS respondents (94.8%). For 1,868 respondents (5.2%) with missing and/or invalid data for both their zip code who were dropped from the estimation sample.

After assigning individual BRFSS respondents to specific towns, they were subsequently assigned to the 15 geographic BRFSS areas via a cross-walk file.

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 five years of data (2018-2022) most of the

sample sizes exceeded 10,000 respondents. Sample sizes ranged from 12,629 for the HIV testing to 14,237 for the usage of E-Cigarette. Sample sizes for indicators estimated with five years (2016, 2018, 2020, and 2022) of BRFSS data were as follows: mammography only for women (4,459) and a dentist visit within a year (8,333). Sample sizes for indicators estimated with five years (2013, 2015, 2017, 2019, and 2021) of BRFSS data were as follows: 5 and more servings of fruit or vegetables (12,778) and cholesterol screening (14,710). 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 Rhode Island. 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 Rhode Island 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, raking weights are computed so that summed counts of weighted BRFSS respondents match known state population totals along population characteristics, including age, sex, and race/ethnicity, telephone source, education level, marital status, and renter/owner status. Since these “ready-to-use” raking weights provided with BRFSS data are only suitable for state-level estimates we had to compute our own post-stratification weights to derive estimates for BRFSS geographic areas within the state.

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, females 70-74, females 75-59, females 80-84, females 85+) were obtained from the 2018-2022 American Community Survey for all cities and towns within Rhode Island (https://data.census.gov/cedsci/). Data for individual towns was aggregated into the 34 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 was 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 was 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 2018-2022 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 2018-2022 ACS age-sex distribution for the state of Rhode Island. 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 18.0 “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.[3] The estimated coefficients for the geographic dummy variables from the regression models are the estimated rates for BRFSS geographic areas. The same estimated rates were reported for all individual cities and towns comprising of the BRFSS geographic areas. 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 were reported in all towns 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 BRFSS area 95% confidence interval does not overlap with the

[3] 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.

state 95% confidence interval as ones where 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 were 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 A1: Rhode Island Healthy Aging Indicator Definitions

INDICATORS	DEFINITION
POPULATION CHARACTERISTICS	
Total population (all ages)	The number of all persons in the state or community.
Population 60 years or older as % of total population	The percentage of persons 60 years or older among the total population.
Total population 60 years or older	The number of persons 60 years or older.
Population 65 years or older as % of total population	The percentage of persons 65 years or older among the total population.
Total population 65 years or older	The number of persons 65 years or older.
% 65-74 years	The percentage of persons 65-74 years among population aged 65 year or older.
% 75-84 years	The percentage of persons 75-84 years among population aged 65 year or older.
% 85 years or older	The percentage of persons 85+ years among population aged 65 year or older.
% 65+ population who are female	The percentage of females 65 years or older among population aged 65 year or older.
% 85+ population who are female	The percentage of females 85 years or older among population aged 65 year or older.
Race and ethnicity of the population 65+:	
% White	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	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	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 race(s)	The percentage of persons 65 years or older reporting their race as “Native Hawaiian or other Pacific Islander”, or reporting entries such as Navajo, Blackfeet, Inupiat, Yup’ik, or Central American Indian groups, South American Indian groups, “Some other race”, or two or more races.
% Hispanic	The percentage of persons 65 years or older reporting their origin as “Hispanic or Latino”.
# 55+ who are Native American/Alaskan	The number of persons 55 years or older reporting their race as “American Indian or Alaska Native”
Marital status of the population 65+:	
% 65+ married	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.

INDICATORS	DEFINITION
% 65+ divorced/separated	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.
% 65+ widowed	The percentage of persons 65 years or older reporting they are widows and widowers who have not remarried.
% 65+ never married	The percentage of persons 65 years or older reporting they have never been married, including people whose only marriage(s) was annulled.
Education of the population 65+:	
% with less than high school education	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	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	The percentage of persons 65 years or older reporting they received a bachelor's degree.
% with graduate or professional degree	The percentage of persons 65 years or older reporting they received a master's, or professional or doctorate degree.
% 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 service	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.
% of 60+ 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?"
HOUSING	
% 65+ population who live alone	The percentage of persons 65 years or older reporting that they live alone.
Average household size (all ages)	Average number of persons in the household.
Median house value (all ages)	The average median value of houses.
% 60+ own home	The percentage of households with a householder age 60 years or older who are homeowners.
% 60+ homeowners who have mortgage	The percentage of households with a householder age 60 years or older who have mortgage on home.
% 65+ households (renter) spend >35% of income on housing	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 (owner) spend >35% of income on housing	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.

INDICATORS	DEFINITION
% 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.
SOCIAL DETERMINANTS OF HEALTH	
COST OF LIVING	
Elder Index	
Single, homeowner without mortgage, good health (County)	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 (County)	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 (County)	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 (County)	Annual income needed for a couple who are renters in good health to attain a modest standard of living in the county.
ECONOMIC	
% 60+ receiving food stamps in 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 in past year	The percentage of persons 60 years or older employed in the past year.
% 65+ with income below the poverty line in 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.
Median annual income for households with a householder age 65+	The median annual income of households with a householder age 65 years or older from 2018 to 2022.
% 65+ 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 from 2018 to 2022 less than $20,000.
% 65+ households with annual income $20,000-$49,999	The percentage of households with a householder age 65 years or older with an annual income from 2018 to 2022 between $20,000 and $49,000.
% 65+ households with annual income $50,000-$99,999	The percentage of households with a householder age 65 years or older with an annual income from 2018 to 2022 between $50,000-$99,999.
% 65+ households with annual income $100,000+	The percentage of households with a householder age 65 years or older with an annual income from 2018 to 2022 more than $100,000.

INDICATORS	DEFINITION
WELLNESS	
% 60+ getting the recommended hours of sleep	The percentage of persons 60 years or older reporting the recommended amount (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-hour period.
% 60+ doing any physical activity in past month	The percentage of persons 60 years or older who performed some form of physical activity (such as running, calisthenics, golf, gardening or walking for exercise) outside of their regular job in the past month.
% 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+ with 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 in past 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+ who reported being satisfied with life	The percentage of persons 60 years or older responding very satisfied or satisfied to the question- “In general, how satisfied are you with your life?”
COMMUNITY	
Annual # of unhealthy days due to air pollution for 65+ (county)	The number of days in 2021 where there was an Air Quality Index score classified as “code red” or “code orange for ozone or particulate matter in the county.
AARP Age-friendly Communities	City/town has officially joined the AARP Network of Age-Friendly States and Communities.
# of public 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 senior centers	The number of senior centers in the community.
# of Osher Lifelong Learning Institutes (OLLI)	The number of Osher Lifelong Learning Institutes (OLLI) in the community.
% households with a smartphone (all ages)	The percentage of households in a community with a smartphone.
% households with only a smartphone to access Internet (all ages)	The percentage of households in a community with only a smartphone to access the Internet.
% households without a computer (all ages)	The percentage of households in a community without a computer.
% households with access to Broadband (all ages)	The percentage of households in a community with access to broadband.
% households without access to the Internet (all ages)	The percentage of households in a community without access to broadband or internet.

INDICATORS	DEFINITION
% 60+ who used Internet in past 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 2020 presidential election (age 18+)	The percentage of registered voters aged 18 and older who voted in the 2020 election.
Homicide rate /100,000 persons (County)	The number of deaths due to homicide per 100,000 persons from 2016 to 2020.
# firearm fatalities (all ages) (County)	The number of deaths due to firearms per 100,000 persons from 2016 to 2020.
# 65+ deaths by suicide (County)	The number of deaths by suicide from 2016 to 2020 among people age 65 and older.
Age-sex adjusted 1-year mortality rate	The percentage of Medicare beneficiaries 65 years or older on January 1, 2021 who lived in the same community for both 2020 and 2021 and who died in 2021 (beneficiary population is weighted to match state age-sex distribution of aged Medicare beneficiaries.
TRANSPORTATION	
% householders 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 or ride wearing a seatbelt	The percentage of persons age 60 years or older who reporting to use seat belt always while driving a car.
60+ drove under influence	The percentage of persons age 60 years or older who answered yes to the question- “During the past 30 days, how many times have you driven when you’ve had perhaps too much to drink?”
# fatal crashes 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 2018 to 2022.
AllTransit Score	The AllTransit Performance Score was obtained from the AllTransit™ website on September 15th, 2023. (https://alltransit.cnt.org/). Data was reported at the Census “place” level, and the average score of each place inside a town or city was reported.
FALLS	
% 60+ who fell in past year	The percentage of persons 60 years or older reporting to have fallen at least once in the past 12 months.
% 60+ who were injured by a fall in past year	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+ with hip fracture	The percentage of Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
PREVENTION	
% 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+ flu shot in 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)?”
% 60+ with pneumonia vaccine	The percentage of persons age 60 years or older who reported ever having a pneumonia vaccination.
% 60+ with shingles vaccine	The percentage of persons age 60 years or older who reported ever having a shingles vaccination.
% 60+ women with a mammogram in past 2 years	The percentage of women 60 years or older whose last mammogram was two years ago or less.
% 60+ had colorectal cancer screening	The percentage of persons age 60 years or older whose last proctoscopy 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+ with optimal preventive health	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).
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+ stressed about buying food in past month	The percentage of persons 60 years or older reporting stress about buying food 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.
% 65+ with high cholesterol	The percentage of Medicare beneficiaries 65 years or older in 2021 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+ with high cholesterol screening	The percentage of persons age 60 years or older who had their cholesterol checked within past 5 years.
ORAL HEALTH	
% 60+ with dental insurance	The percentage of persons age 60 years or older who reporting having a dental insurance within the past year.
% 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) (County)	The number of professionally active dentists per 100,000 persons.

INDICATORS	DEFINITION
% 60+ with loss of 6+ 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.
CHRONIC DISEASE	
% 65+ with Alzheimer's disease or related dementias	The percentage of Medicare beneficiaries 65 years or older in 2021 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 anemia	The percentage of Medicare beneficiaries 65 years or older in 2021 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 asthma	The percentage of Medicare beneficiaries 65 years or older in 2021 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 atrial fibrillation	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with benign prostatic hyperplasia (men)	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with breast cancer (women)	The percentage of female Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
% 65+ with cataract	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with chronic kidney disease	The percentage of Medicare beneficiaries 65 years or older in 2021 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 chronic obstructive pulmonary disease	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with colon cancer	The percentage of Medicare beneficiaries 65 years or older in 2021 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+ with congestive heart failure	The percentage of Medicare beneficiaries 65 years or older in 2021 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 diabetes	The percentage of Medicare beneficiaries 65 years or older in 2021 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 endometrial cancer (women)	The percentage of female Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
% 65+ with fibromyalgia, chronic pain and fatigue	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with glaucoma	The percentage of Medicare beneficiaries 65 years or older in 2021 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+ ever had a heart attack	The percentage of Medicare beneficiaries 65 years or older in 2021 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 HIV/AIDS	The percentage of Medicare beneficiaries 65 years or older in 2021 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 hypertension	The percentage of Medicare beneficiaries 65 years or older in 2021 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+ with ischemic heart disease	The percentage of Medicare beneficiaries 65 years or older in 2021 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 liver disease	The percentage of Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
% 65+ with lung cancer	The percentage of male Medicare beneficiaries 65 years or older in 2021 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.
% 65+ with migraine and other chronic headache	The percentage of Medicare beneficiaries 65 years or older in 2021 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 osteoarthritis or rheumatoid arthritis	The percentage of Medicare beneficiaries 65 years or older in 2021 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 2021 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 peripheral vascular disease	The percentage of Medicare beneficiaries 65 years or older in 2021 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 pressure ulcer or chronic ulcer	The percentage of Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
% 65+ with prostate cancer (men)	The percentage of male Medicare beneficiaries 65 years or older in 2021 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 stroke	The percentage of Medicare beneficiaries 65 years or older in 2021 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 4+ (out of 15) chronic conditions	The percentage of Medicare beneficiaries 65 years or older in 2021 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 0 chronic conditions	The percentage of Medicare beneficiaries 65 years or older in 2021 who never ever met the claims-based criteria indicating any of 15 chronic conditions since 1999.
BEHAVIORAL HEALTH	
# of drug overdose deaths (all ages) (County)	Number of confirmed drug overdose deaths for all intents by county of residence for the decedent among Rhode Island residents in 2016-2020.
% 65+ with substance use disorder	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 60+ who used marijuana in past month	The percentage of persons age 60 years or older who answered yes to the question- "During the past 30 days, on how many days did you use marijuana or hashish?

INDICATORS	DEFINITION
% 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 tobacco use disorders	The percentage of Medicare beneficiaries 65 years or older in 2021 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.
% 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+ ever used E-Cigarettes in past month	The percentage of persons age 60 years or older who answered yes to the question- “Have you ever used an e-cigarette or other electronic “vaping” product, even just one time, in your entire life?”
MENTAL HEALTH	
% 60+ who reported receiving adequate emotional support	The percentage of persons 60 years or older responding always or usually to the question- “How often do you get the emotional support you need?”
% 60+ with 15+ days poor mental health past 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 2021 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.
% 65+ with anxiety disorder	The percentage of Medicare beneficiaries 65 years or older in 2021 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.

INDICATORS	DEFINITION
% 65+ with post-traumatic stress disorder	The percentage of Medicare beneficiaries 65 years or older in 2021 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 65 years or older in 2021 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.
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 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 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 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 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.
CAREGIVING	
# of Alzheimer's support groups	A count of in-person support groups for caregivers of Alzheimer's disease sponsored by the Alzheimer's Association in the city/town.
% 60+ who provide care to a family/friend in past month	The percentage of persons age 60 years or older who answered yes to the question- "During the past 30 days, did you provide regular care or assistance to a friend or family member who has a health problem or disability?"
% of grandparents raising grandchildren	The percentage of grandparents who are financially responsible for any or all grandchildren living in the household.

INDICATORS	DEFINITION
ACCESS TO CARE	
% 65+ 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 2021. (Beneficiaries with restricted Medicaid entitlement are only entitled to some Medicaid benefits (e.g., drug coverage only, and/or premium/copayments for services).
% 65+ 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 2021.
% 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?
# of primary care providers	Primary care providers were defined as physicians with the following main specialties listed in the provider file: family practice, general practice, geriatric medicine, internal medicine. In addition, physician assistants and nurse practitioners in the above specialties were also considered as PCPs.
# of hospitals	A count of CMS-certified short-term general hospitals in the city/town.
# of home health agencies	A count of CMS-certified home health agencies serving patients living in the city/town.
# of skilled nursing facilities	A count of CMS-certified nursing homes in the city/town.
# of hospice agencies	A count of CMS-certified hospice agencies in the city/town.
# of community health centers	A count of community health centers from HRSA in the city/town. For more information on HRSA regulations for community health centers, visit: https://bphc.hrsa.gov/about-health-center-program/what-health-center#:~:text=Have%20a%20governing%20board%20where,else%20the%20Compliance%20Manual%20requires
# of adult day health centers	A count of adult day health centers in the city/town.
SERVICE UTILIZATION	
# of physician visits per year	Average Part B physician office visit evaluation and management services received in 2021 by Medicare beneficiaries 65 years or older.
# of emergency room visits/1000 persons 65+ years annually	Average number of emergency department visits (where beneficiaries were released or admitted to a hospital) in 2021 per 1,000 Medicare beneficiaries 65 years or older.
# of Part D monthly prescription fills per person annually	Average number of standard 30 days supplies of a filled Part D prescription in 2021 by Medicare beneficiaries 65 years or older.

INDICATORS	DEFINITION
# of home health visits annually	Average home health visits in 2021 per Medicare beneficiary 65 years or older.
# of durable medical equipment claims annually	Average Part B durable medical equipment services received in 2021 by Medicare beneficiaries 65 years or older.
# of inpatient hospital stays/1000 persons 65+ years annually	A count of inpatient hospital discharges in 2021 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.
# of skilled nursing facility stays/1000 persons 65+ years annually	A count of skilled nursing facility in 2021 per 1,000 Medicare beneficiaries 65 years or older.
# of 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 2021 .
% 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 2021. (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.
% 65+ hospice users	The percentage of Medicare beneficiaries 65 years or older in 2021 who ever met the claims-based criteria indicating any of Medicare covered days in the hospice setting in 2021 during a 1-year period. These criteria are having at least one Part B Medicare claims with appropriate diagnosis codes or Medicare managed care plan (Medicare Advantage) for at least 1 month in 2021.
% 65+ hospice users as % of decedents	The percentage of Medicare beneficiaries 65 years or older in 2020 or Medicare beneficiaries 65 years or older in 2021 who ever met the claims-based criteria indicating any of Medicare covered days in the hospice setting in 2021, but died in 2020 or 2021. 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 or Medicare managed care plan (Medicare Advantage) for at least 1 month during a 2-year period.

Table A2: Years and Data Sources for Community Profile Indicators

INDICATORS	SOURCES and YEAR
POPULATION CHARACTERISTICS	
Total population all ages; Population 60 years or older as % of total population; Total population 60 years or older; Population 65 years or older as % of total population; Total population 65 years and older; % 65-74 years, % 75-84 years; % 85 years or older; % 65+ population who are female; % 85+ population who are female	United States Census Bureau. "B01001: SEX BY AGE." *2018 – 2022 American Community Survey*. U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
Race/Ethnicity: % White; % African American; % Asian; % Other race(s); % Hispanic; # of 55+ who are Native American/Alaskan	United States Census Bureau. "B01001A, B01001B, B01001D, B01001I: SEX BY AGE." *2018 – 2022 American Community Survey*. U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
Marital status of the population 65+: % married; % divorced/separated; % widowed; % never married	United States Census Bureau. "B12002: SEX BY MARITAL STATUS BY AGE FOR THE POPULATION 15 YEARS AND OVER." U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
Education of the population 65+: % with less than a high school education; % with high school or some college; % with college degree; % with graduate or professional degree	United States Census Bureau. "B15001: SEX BY AGE BY EDUCATIONAL ATTAINMENT FOR THE POPULATION 18 YEARS AND OVER." U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ population who speak only English at home	United States Census Bureau. "B16007: AGE BY LANGUAGE SPOKEN AT HOME BY ABILITY TO SPEAK ENGLISH FOR THE POPULATION 5 YEARS AND OVER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ population who are veterans of military service	United States Census Bureau. "B21001: SEX BY AGE BY VETERAN STATUS FOR THE CIVILIAN POPULATION 18 YEARS AND OVER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% of 60+ LGBT	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).

INDICATORS	SOURCES and YEAR
HOUSING	
% 65+ population who live alone	United States Census Bureau. "B09020: RELATIONSHIP BY HOUSEHOLD TYPE (INCLUDING LIVING ALONE) FOR THE POPULATION 65 YEARS AND OVER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
Average household size (all ages)	United States Census Bureau. "B11016: HOUSEHOLD TYPE BY HOUSEHOLD SIZE". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
Median house value (all ages)	United States Census Bureau. "B25077: Median House Value". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 60+ own home	United States Census Bureau. "B25007: TENURE BY AGE HOUSEHOLDER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 60+ homeowners who have mortgage	United States Census Bureau. "B25027: MORTGAGE STATUS BY AGE HOUSEHOLDER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ households (renter) spend >35% of income on housing	United States Census Bureau. "B25072: AGE OF HOUSEHOLDER BY GROSS RENT AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ households (owner) spend >35% of income on housing	United States Census Bureau. "B25093: AGE OF HOUSEHOLDER BY SELECTED MONTHLY OWNER COSTS AS A PERCENTAGE OF HOUSEHOLD INCOME IN THE PAST 12 MONTHS". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).

INDICATORS	SOURCES and YEAR
% of grandparents who live with grandchildren	United States Census Bureau. "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". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
# of assisted living sites	The number of assisted living sites were retrieved on October 5th, 2023, from (https://health.ri.gov/find/assistedliving/).
SOCIAL DETERMINANTS OF HEALTH	
COST OF LIVING	
ELDER INDEX	
Single, homeowner without mortgage, good health (County)	Elder Economic Security Index data from the University of Massachusetts Boston Center for Social and Demographic Research on Aging, August 2023. Accessed March 2024.
Single, renter, good health (County)	
Couple, homeowner without mortgage, good health (County)	
Couple, renter, good health (County)	
ECONOMICS	
% 60+ receiving food stamps in past year	United States Census Bureau. "B22001: RECEIPT OF FOOD STAMPS/SNAP IN THE PAST 12 MONTHS BY PRESENCE PEOPLE 60 YEARS AND OVER FOR HOUSEHOLDS". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ employed in past year	United States Census Bureau. "B23004: WORK STATUS IN THE PAST 12 MONTHS BY AGE BY EMPLOYMENT STATUS FOR THE CIVILIAN POPULATION 65 YEARS AND OVER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with income below the poverty line in past year	United States Census Bureau. "B17001: "POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).

INDICATORS	SOURCES and YEAR
Median annual income for households with a householder age 65+; % 65+ households with annual income < $20,000; % 65+ households with annual income $20,000-$49,999; % 65+ households with annual income $50,000-$99,999; % 65+ households with annual income $100,000+;	United States Census Bureau. "B19037: AGE OF HOUSEHOLDER BY HOUSEHOLD INCOME IN THE PAST 12 MONTHS (IN 2023 INFLATION-ADJUSTED DOLLARS)". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. (https://data.census.gov/cedsci/).
WELLNESS	
% 60+ getting recommended hours of sleep	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ doing any physical activity in past month	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
% 60+ met CDC guidelines for muscle-strengthening activity	2011-2019 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
% 60+ met CDC guidelines for aerobic physical activity	2011-2019 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
% 60+ with fair or poor self-reported health status	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
% 60+ with 15+ physically unhealthy days past month	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
% 60+ who reported being satisfied with life	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://www.mass.gov/behavioral-risk-factor-surveillance).
COMMUNITY	
Annual # of unhealthy days due to air pollution for 65+ (county)	United States Environmental Protection Agency. Air Compare. Accessed July 30th, 2023. (https://www3.epa.gov/aircompare/#trends).
AARP Age-friendly Communities	Age-friendly communities were collected from the AARP livable community network. Accessed June 24th, 2023. (https://www.aarp.org/livable-communities/network-age-friendly-communities/info-2016/member-list.html).

INDICATORS	SOURCES and YEAR
# of public universities and community colleges	Number of public universities and community colleges in community is retrieved from New England Commission of Higher Education. Accessed October 5th, 2023. (https://www.neche.org/roster/).
# of public libraries	Number of public libraries in the community is downloaded from the RI State Library, Division of Library Development. (https://oslri.org/library-locator/). Accessed June 27th, 2023.
# of senior centers	Data were downloaded from the Rhode Island Health and Human Services. (https://agefriendlyri.org/tools-resources/senior-centers-rhode-island/). Accessed July 5th, 2023.
# of Osher Lifelong Learning Institutes (OLLI)	The number of OLLI programs in community is retrieved from The Bernard Osher Foundation. Accessed October 11th, 2023. (https://www.osherfoundation.org/olli_list.html).
% households with a smartphone (all ages)	United States Census Bureau. "B28001, S2801: TYPES OF COMPUTERS AND INTERNET SUBSCRIPTIONS". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. (https://data.census.gov/cedsci/).
% households with only a smartphone to access Internet (all ages)	
% household without a computer (all ages)	
% households with access to Broadband (all ages)	
% households without access to the Internet (all ages)	
% 60+ who used Internet in past month	2013-2017 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed March 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
Voter participation rate in 2020 election (age 18+)	Voter participation rate was obtained from the Rhode Island Department of the State. (https://app.powerbigov.us/view?r=eyJrIjoiMWI2MDQxMzEtYmE2Ni00OTU1LTk5NjgtNzRhOTE0Yzc3YmY0IiwidCI6IjJkMGYxZGI2LWRkNTktNDc3Mi04NjVmLTE5MTQxNzVkMDdjMiJ9). Accessed August 13th, 2023.
Homicide rate /100,000 persons (County)	CDC Wonder, Multiple Cause of Death, 2016-2020. Accessed August 2023. (https://wonder.cdc.gov/controller/datarequest/D77;jsessionid=3AC202E57AC0BFE77BAEFB8769E8148D?stage=results&action=toggle&p=O_show_suppressed&v=true) .
# of firearm fatalities (all ages) (County)	
# of 65+ deaths by suicide (County)	
Age-sex adjusted 1-year mortality rate	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).

INDICATORS	SOURCES and YEAR
TRANSPORTATION	
% householders 65+ who own a motor vehicle	United States Census Bureau. "B25045: TENURE BY VEHICLES AVAILABLE BY AGE OF HOUSEHOLDER". U.S. Census Bureau's American Community Survey Office, 2022. Accessed March 2024. (https://data.census.gov/cedsci/).
% 60+ who always drive or ride wearing a seatbelt	2015-2020 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ drove under influence	2012-2020 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
# of fatal crashes involving adult age 60+ (County)	National Highway Traffic Safety Administration, Fatal Accident Reporting System (FARS) representing data for years 2018-2022. Downloaded from (http://www.nhtsa.gov/FARS). Accessed August 2023.
AllTransit Score	The AllTransit Performance Score was obtained from the AllTransit™ website on September 15th, 2023. (https://alltransit.cnt.org/).
FALLS	
% 60+ who fell in past year	2014-2020 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ who were injured in a fall in past year	2012-2020 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 65+ with hip fracture	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
PREVENTION	
% 60+ with physical exam/check-up in past year	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ flu shot past year	
% 60+ with pneumonia vaccine	
% 60+ with shingles vaccine	2012-2020 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).

INDICATORS	SOURCES and YEAR
% 60+ women with mammogram in past 2 years	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ had colorectal cancer screening	
% 60+ with HIV test	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ with optimal preventive health	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
NUTRITION/DIET	
% 60+ with 5 or more servings of fruit or vegetables per day	2013-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ stressed about buying food in past month	2015-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ self-reported obese	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 65+ with high Cholesterol	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 60+ with high cholesterol screening	2013-2021 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
ORAL HEALTH	
% 60+ with dental insurance	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ with annual dental exam	
# dentists per 100,000 persons (all ages) (County)	Health Resources and Services Administration (HRSA). Accessed June 24th, 2023. (https://data.hrsa.gov/topics/health-workforce/ahrf).
% 60+ with loss of 6+ teeth	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).

INDICATORS	SOURCES and YEAR
CHRONIC DISEASE	
% 65+ with Alzheimer's disease or related dementias	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 65+ with anemia	
% 65+ with asthma	
% 65+ with atrial fibrillation	
% 65+ with benign prostatic hyperplasia (men)	
% 65+ with breast cancer (women)	
% 65+ with cataract	
% 65+ with chronic kidney disease	
% 65+ with chronic obstructive pulmonary disease	
% 65+ with colon cancer	
% 65+ with congestive heart failure	
% 65+ with diabetes	
% 65+ with endometrial cancer (women)	
% 65+ with fibromyalgia, chronic pain and fatigue	
% 65+ with glaucoma	
% 65+ ever had a heart attack	
% 65+ with HIV/AIDS	
% 65+ with hypertension	
% 65+ with ischemic heart disease	
% 65+ with leukemias and lymphomas	
% 65+ with liver disease	
% 65+ with lung cancer	
% 65+ with migraine and other chronic headache	
% 65+ with osteoarthritis or rheumatoid arthritis	
% 65+ with osteoporosis	
% 65+ with peripheral vascular disease	
% 65+ with pressure ulcer or chronic ulcer	
% 65+ with prostate cancer (men)	
% 65+ with stroke	
% 65+ with 4+ (out of 15) chronic conditions	
% 65+ with 0 chronic conditions	

INDICATORS	SOURCES and YEAR
BEHAVIORAL HEALTH	
# drug overdose deaths (all ages) (County)	CDC Wonder, Multiple Cause of Death, 2016-2020. Accessed August 2023. (https://wonder.cdc.gov/controller/datarequest/D77;jsessionid=3AC202E57AC0BFE77BAEFB8769E8148D?stage=results&action=toggle&p=O_show_suppressed&v=true).
% 65+ with substance use disorder	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 60+ who used marijuana in past month	2017-2019 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ excessive drinking	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 65+ with tobacco use disorders	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 60+ current smokers	2014-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ ever used E-Cigarettes in past month	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
MENTAL HEALTH	
% 60+ who reported receiving adequate emotional support	2017-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ with 15+ days poor mental health in past month	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 65+ with depression	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 65+ with anxiety disorder	
% 65+ with post-traumatic stress disorder	
% 65+ with schizophrenia & other psychotic disorder	

INDICATORS	SOURCES and YEAR
LIVING WITH DISABILITY	
% 65+ with self-reported hearing difficulty	United States Census Bureau. "B18102: SEX BY AGE BY HEARING DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with self-reported vision difficulty	United States Census Bureau. "B18103: SEX BY AGE BY VISION DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with self-reported cognition difficulty	United States Census Bureau. "B18104: SEX BY AGE BY COGNITIVE DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with self-reported ambulatory difficulty	United States Census Bureau. "B18105: SEX BY AGE BY AMBULATORY DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with self-reported self-care difficulty	United States Census Bureau. "B18106: SEX BY AGE BY SELF-CARE DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
% 65+ with self-reported independent difficulty	United States Census Bureau. "B18107: SEX BY AGE BY INDEPENDENT DIFFICULTY". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).
CAREGIVING	
# of Alzheimer's support groups	Alzheimer's Association. Community Resource finder tool. Retrieved from (https://www.communityresourcefinder.org/ProviderSearch/Search?ProfileDefinitionId=91&location=boston%2C+ma) in November, 2023.
% 60+ who provide care to a family/friend in past month	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% grandparents raising grandchildren	United States Census Bureau. "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". U.S. Census Bureau's American Community Survey Office, 2018-2022. Accessed March 2024. *(*https://data.census.gov/cedsci/).

INDICATORS	SOURCES and YEAR
ACCESS TO CARE	
% 65+ dually eligible for Medicare and Medicaid	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org).
% 65+ Medicare managed care enrollees	
% 60+ with a regular doctor	2018-2022 Behavioral Risk Factor Surveillance Survey, Rhode Island, Department of Public Health. Accessed April 2024. (https://rhode-island-brfss-rihealth.hub.arcgis.com/).
% 60+ who did not see doctor when needed due to cost	
# of primary care providers	Primary care providers (PCPs) were obtained from the Doctors and Clinicians national downloadable file (https://data.cms.gov/provider-data/dataset/mj5m-pzi6) in June 2023.
# of hospitals	Number of hospitals per county was obtained from the Hospital General Information data table (https://data.cms.gov/provider-data/dataset/xubh-q36u). Data on Hospitals was accessed on June 25th, 2023.
# of home health agencies	Number of home health agencies per county was obtained from the Home Health Care Agencies data table (https://data.cms.gov/provider-data/dataset/6jpm-sxkc). Data on home health agencies was accessed on July 2nd, 2023.
# of skilled nursing facilities	Number of nursing homes per county was obtained from the Provider Information data table (https://data.cms.gov/provider-data/dataset/4pq5-n9py). Data on skilled nursing homes was accessed on July 2nd, 2023.
# of hospice agencies	Number of hospice agencies per county was obtained from the Hospice – Provider Data table (https://data.cms.gov/provider-data/dataset/xubh-q36u). Data was accessed on June 28th, 2023.
# of community health centers	HRSA Data Warehouse. "Find a Health Center Tool". (https://findahealthcenter.hrsa.gov/). Accessed July 4th, 2023.
# of adult day health centers	Rhode Island Association of Adult Day Services. Data was accessed on October 16th, 2023. https://health.ri.gov/find/licensees/index.php?prof=Adult%20Day%20Care%20Program#foo).
SERVICE UTILIZATION	
# physician visits per year	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org)
# emergency room visits/1000 persons 65+ years annually	
# Part D monthly prescription fills per person annually	
# home health visits annually	
# durable medical equipment claims annually	

INDICATORS	SOURCES and YEAR
# inpatient hospital stays/1000 persons 65+ years annually	2020-2021 Master Beneficiary Summary File – A/B/C/D/Other, CMS Chronic Condition Data Warehouse. Accessed December 2023. (www.ccwdata.org)
% Medicare inpatient hospital readmissions (as % of admissions)	
# skilled nursing facility stays/1000 persons 65+ years annually	
# skilled nursing home Medicare beds/1000 persons 65+ years	
% 65+ getting Medicaid long term services and supports	
% 65+ hospice users	
% 65+ hospice users as % of decedents	