Healthcare Experiences of Medicare-Aged LGBTQ+ Individuals in the US

A Visual Analysis Using Medical Expenditure Panel Survey (MEPS) Data

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*The following paper is a submission in reply to the* [*Society of Actuaries’ Call for Papers*](https://www.soa.org/research/opportunities/call-for-papers-list/) *under the heading “*[*Aging and Retirement Issues for LGBTQ+ People – Second Invitation*](https://www.soa.org/research/opportunities/call-for-essay-aging-retire-lgbtq/)*”.*

# Background and Purpose

The level of discrimination that some LGBTQ+-identifying subpopulations face in society is rapidly decreasing; for others, such as transgender individuals, there are still impactful and endemic stigmas in play which act as a barrier to living full and rewarding lives. Barriers such as these have potentially inhibited the ability of many people who identify as LGBTQ+ from enjoying the same protections of our social safety net – such as healthcare and retirement security systems – that are enjoyed by non-LGBTQ+-identifying people.

It is currently difficult to credibly estimate how retirement-related outcomes differ between LGBTQ+ and non-LGBTQ+ populations, or to know how to quantify the disparities of outcomes among intersectional subpopulations that exist today within the United States’ LGBTQ+ population. One key reason for this difficulty is the lack of available data that can help guide our policymaking apparatus towards better regulations and protections for members of our society who are more likely to be marginalized, stigmatized, or disadvantaged by systemic factors. This includes LGBTQ+ people, of course, but heavily intersects with people of color, women, religious minorities, foreign-born individuals, disabled individuals, and – key to this paper – the US’s rapidly aging population.

In the healthcare space, there is ample energy devoted to the important work being done by organizations, both private and public, to better understand the impacts of what are known as Social Determinants of Health – “the conditions in the environments where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks” (as defined by the [US Dept. of Health and Human Services](https://health.gov/healthypeople/priority-areas/social-determinants-health)).

Analyzing Social Determinants of Health (SDoH) can provide [causal evidence](https://aspe.hhs.gov/reports/sdoh-evidence-review) for how certain subpopulations of our society disproportionately experience poor health outcomes. Consequently, population health professionals and actuaries alike have an interest in better understanding the relationships between SDoH and access to quality healthcare that is both affordable and can be sustainably provided by the care delivery system.

It is therefore reasonable to suspect that investigating differences in patient experiences between Medicare-aged LGBTQ+-identifying individuals and their non-LGBTQ+ Medicare-aged or non-Medicare-aged LGBTQ+ counterparts can give us better information about how the Medicare-aged LGBTQ+ population should plan and prepare for healthcare expenses in retirement.

In order to carry out this preliminary investigation, I performed an analysis of the public use files (PUFs) made available by the [Medical Expenditure Panel Survey](https://meps.ahrq.gov/mepsweb/) (MEPS). The purpose of this paper is twofold, and the paper is divided into two primary sections:

1. In [Data and Methodology](#data-and-methodology) I explain and document a consistent data manipulation approach for identifying certain cohorts who are likely to identify as LGBTQ+ within the MEPS public data files; and
2. In [Visualizing Healthcare Experiences for LGBTQ+ Subpopulations](#X4ef912216dbd141fe87d70131618ce158813cd3) I showcase a visual representation of preliminary findings around key healthcare experiences and outcomes between Medicare-aged LGBTQ+ cohorts and other relevant cohorts – findings which describe healthcare outcomes commonly of interest to population health analyses, such as total pharmacy expenditure per individual, and average pharmacy utilization, average inpatient length-of-stay, and average hospital emergency department utilization utilization, to name a few.

The primary goal of this paper is to motivate additional and more rigorous research into the specific healthcare outcomes-related challenges faced by current and future Medicare-aged LGBTQ+ individuals within the United States.

# Data and Methodology

## About MEPS

MEPS has been administered in its current form since 1996, and according the [Agency for Healthcare Research and Quality](https://www.ahrq.gov/) (AHRQ), the government agency at MEPS’s helm, MEPS is a collection of “data on the specific health services that Americans use, how frequently they use them, the cost of these services, and how they are paid for, as well as data on the cost, scope, and breadth of health insurance held by and available to U.S. workers” ([Survey Background, MEPS Homepage](https://meps.ahrq.gov/mepsweb/about_meps/survey_back.jsp)).

Because MEPS data is drawn from survey respondents, any analysis of MEPS data is subject to many of the usual strengths and limitations of survey data analysis. One major weakness of using survey data to perform inferential analysis is that data from respondents is often self-reported or imputed and is not always accurate. Therefore, there are some situations in which it would be advisable for individuals using this data to perform additional data quality checks. For example, an analyst might want to compare, in aggregate, the results of two separate but related survey questions, such as the count of individual respondents that have a valid person ID (PID) value for spouse ID (SPOUID) against the count of individuals who indicated that they are currently married.

Additionally, MEPS provides [statistical precision guidelines](https://meps.ahrq.gov/survey_comp/precision_guidelines.shtml) about applying and displaying the results of inferential statistical methods using the data, which include restrictions and guidance concerning minimum sample sizes of cohorts used in statistical methods, as well as standards establishing acceptable standard error thresholds of estimates calculated using statistical methods. I discuss this guidance further in a subsequent section of this paper.

## About the MEPS Public Use Files

MEPS is administered in two distinct components - the [Household Component](https://meps.ahrq.gov/mepsweb/survey_comp/household.jsp), which was used to generate the preliminary findings in this paper, and the [Insurance Component](https://meps.ahrq.gov/mepsweb/survey_comp/Insurance.jsp), which is not publicly available for download and must be accessed in a [Federal Statistical Research Data Center](https://www.census.gov/content/census/en/about/adrm/fsrdc/locations.html). Data from this component was not used in this analysis.

The MEPS Household Component “fields questionnaires to individual household members to collect nationally representative data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, satisfaction with care, health insurance coverage, income, and employment” ([Household Component, Survey Background, MEPS Homepage](https://meps.ahrq.gov/mepsweb/survey_comp/household.jsp)).

MEPS data files have been used in the past to generate many findings within the academic disciplines of public health and health policy. Some specific examples of scientific literature containing analyses of MEPS data relevant to the current strategic research initiatives of the [Society of Actuaries Research Institute](https://www.soa.org/programs/strategic-research-program/) are given below:

* [Medical Expenditure Panel Survey: a valuable database for studying racial and ethnic disparities in prescription drug use](https://pubmed.ncbi.nlm.nih.gov/18794032/)
* [Any Use and “Frequent Use” of Opioids among Elderly Adults in 2018-2019, by Socioeconomic Characteristics](https://pubmed.ncbi.nlm.nih.gov/35696517/)
* [Healthcare Expenditures for Treatment of Mental Disorders: Estimates for Adults Ages 18 and Older, U.S. Civilian Noninstitutionalized Population, 2019](https://pubmed.ncbi.nlm.nih.gov/35696514/)
* [Comparison of the Total Number of People in the U.S. Civilian Noninstitutionalized Population Purchasing One or More Antidepressant or Antipsychotic Prescriptions by Select Sociodemographic Characteristics, 2013 and 2018](https://pubmed.ncbi.nlm.nih.gov/35696503/)
* [Top Five Most Costly Conditions among Adults Age 18 and Older, 2012: Estimates for the U.S. Civilian Noninstitutionalized Population](https://pubmed.ncbi.nlm.nih.gov/28783295/)

One piece of information that is absent from the long list of data points sampled in the MEPS Household Component is whether individual respondents identify as any LGBTQ+ subpopulation. This presents a major challenge for using MEPS public use files to investigate healthcare outcomes experienced by LGBTQ+ individuals in the US. However, a method for identifying some individuals who are very likely to identify as LGBTQ+ is described in further detail in the next section.

The R code that performs this analysis and prepares the this document, including all data tables and visualizations, is available [on Github](https://github.com/bentwheel/lgbtq-retirement-meps-analysis).

Since the LGBTQ+-identifying population in the United States is a relatively small subset of the overall population, MEPS data PUFs from surveys representative of years between 2014 and 2019 (see table below) are pooled together to produce the data visualizations and tables within this paper.

The purpose of pooling the MEPS PUFs across such a long span of time is to build a cohort of Medicare-aged (i.e., aged 65 and up) LGBTQ+ individuals that is large enough to comply with MEPS’s [statistical precision guidelines](https://meps.ahrq.gov/survey_comp/precision_guidelines.shtml) for applying statistical methods to generate population-level estimates of this cohort’s demographic composition and measurable healthcare outcomes.

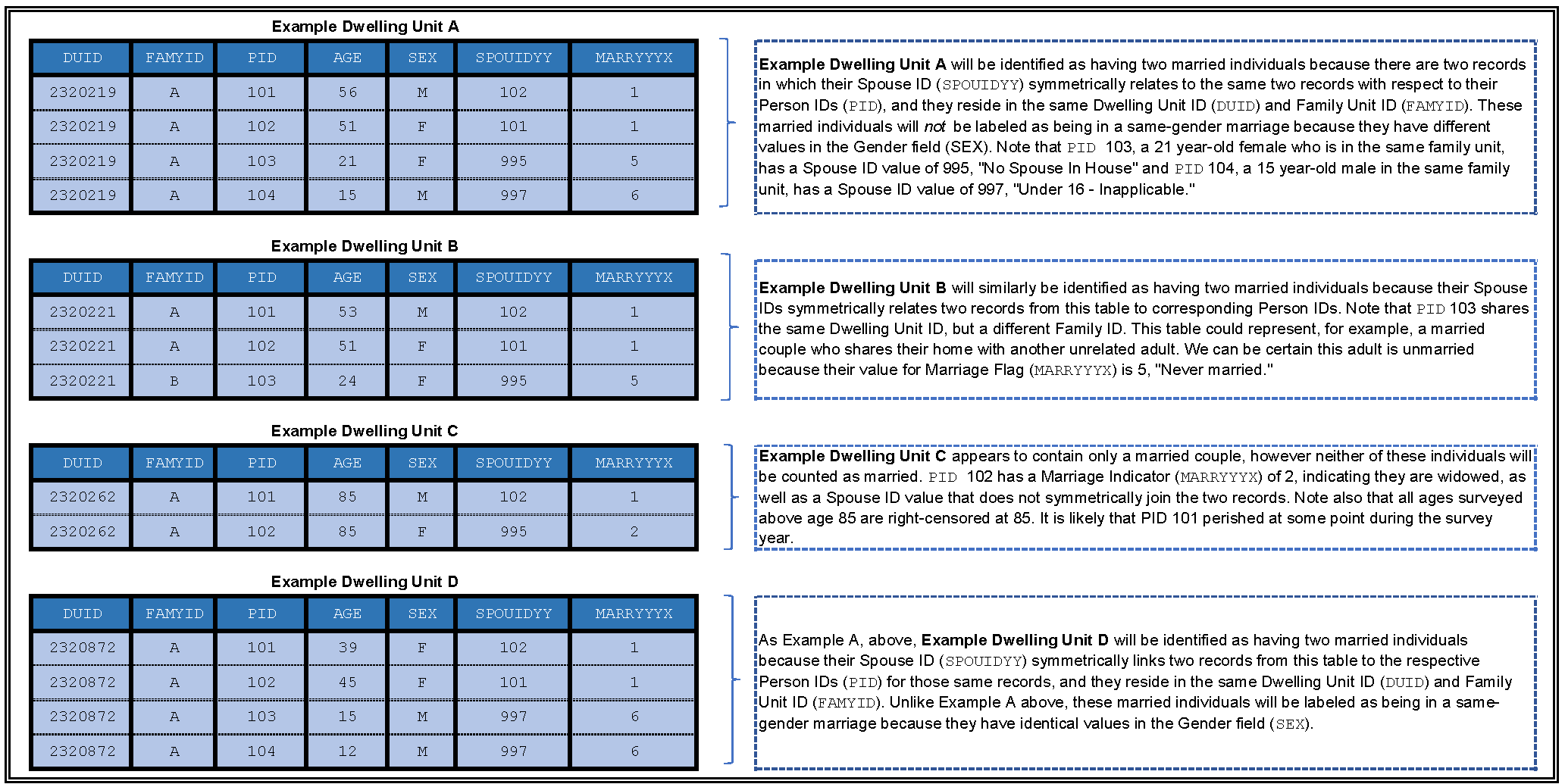
All MEPS Full Year Consolidated data PUFs listed in the following table contain variables pertaining to survey administration, income, person-level conditions, health status, disability days, quality of care, employment, health insurance, and person-level medical care use and expenditures:

| Data File | Description |
| --- | --- |
| [2019 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-216) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 23 and Rounds 1, 2, and 3 of Panel 24, the rounds for the MEPS panels covering calendar year 2019. |
| [2018 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-209) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 22 and Rounds 1, 2, and 3 of Panel 23, the rounds for the MEPS panels covering calendar year 2018. |
| [2017 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-201) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 21 and Rounds 1, 2, and 3 of Panel 22, the rounds for the MEPS panels covering calendar year 2017. |
| [2016 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-192) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 20 and Rounds 1, 2, and 3 of Panel 21, the rounds for the MEPS panels covering calendar year 2016. |
| [2015 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-181) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 19 and Rounds 1, 2, and 3 of Panel 20, the rounds for the MEPS panels covering calendar year 2015. |
| [2014 Full Year Consolidated Data File](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-171) | This file consists of MEPS survey data obtained in Rounds 3, 4, and 5 of Panel 18 and Rounds 1, 2, and 3 of Panel 19, the rounds for the MEPS panels covering calendar year 2014. |
| [MEPS 1996-2020 Pooled Linkage File for Common Variance Structure](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-036) | This HC-036 file contains the proper variance structure to use when making estimates from MEPS data that have been pooled over multiple years and where one or more years are from 1996-2001 or 2019-2020. |

## Identifying Individuals in Same-Gender Marriages in the MEPS Public Use Files

As stated earlier, there is no LGBTQ+ indicator in the MEPS survey questionnaires that are administered to respondents. Therefore, in this paper, we will make the simplifying assumption that individuals in same-gender marriages are members of the US subpopulation identifying as LGBTQ+.

Below are several examples of actual records and fields in the [2019 MEPS Full Year Consolidated PUF Codebook](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_codebook.jsp?PUFId=H216) provided in order to showcase the methodology used to construct the same-gender marriage flag in the MEPS PUFs.



There are many shortcomings to this approach, as this approach will fail to identify certain individual respondents who may identify as LGBTQ+, such as:

* Any individual who may identify as LGBTQ+ but is married to someone of a different gender (e.g., individuals who identify as transgender or bisexual and are married to an individual who is not the same gender); and,
* All unmarried persons who identify as LGBTQ+.

However, this approach will succeed in identifying any LGBTQ+-identifying individual married to any other LGBTQ+-identifying individual, in cases where both spouses have the same gender marker.

While this approach fails to identify some subgroups within the broader LGBTQ+ population in the United States, we can still use this approach to determine if there are substantial differences in the underlying demography, patient experiences, or incurred expenses between subpopulations in same-gender marriages and otherwise-similar subpopulations not in same-gender marriages within the US. Although these cohorts do not fully represent LGBTQ+- and non-LGBTQ+-identifying subpopulations, we might find them to be useful proxies given the lack of publicly available data concerning individuals who explicitly identify as LGBTQ+.

In this paper, we will consider and even see some evidence supporting the possibility that marriage (or perhaps cohabitation, more generally) has a confounding influence on some of the population-level estimates of measurements of interest (e.g., annual healthcare expenditures, emergency room utilization, etc.). Therefore, most data visualizations and data tables in this paper will present findings comparing key population-level estimates between married individuals in same-gender marriages against married individuals not identified as being in same-gender marriages in order to control for the potential of confounding effects from marriage.

## MEPS Precision Guidelines for Population-Level Estimates

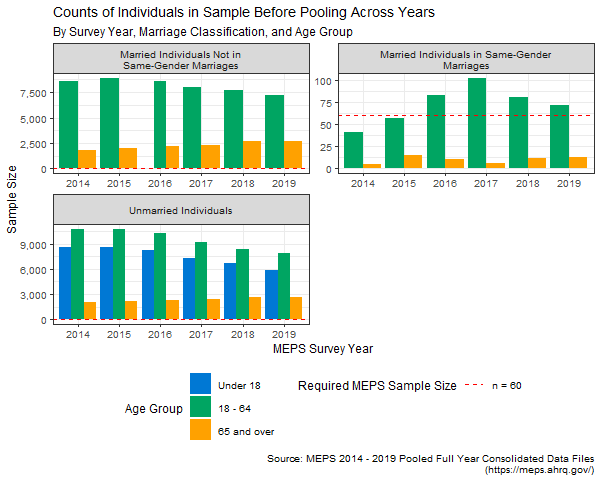
In most cases, the MEPS statistical precision guidelines require that any estimates of statistics (e.g., means, total counts, or proportions) based on categorical indicators (e.g., race, gender, etc.) or numeric variables (e.g., mean number of RX fills per year) adhere to the following two restrictions:

1. The underlying sample data associated with the subpopulation from which the estimates are derived should consist of at least 60 sampling units. The sampling units can be families or individuals, but in our case are individual respondents.
2. If the relative standard error (RSE) corresponding to an estimate of a statistic of interest exceeds 0.5, it should not be displayed in data tables or visualizations of findings. Furthermore, if the RSE of the corresponding population-level estimate exceeds 0.3, it must be called out in any charts or tables as questionable. Relative standard error can be computed as

* and is displayed as a percentage in the data tables in [Appendix A](#appendix-a-data-tables) for all population-level estimates computed in this paper.

## Sample Sizes Before Pooling Across MEPS Years

In the data visualization below, the minimum sample threshold required by the MEPS precision standards guidelines (*n* = 60) is denoted by a dashed red line. We can see from this visualization that every individual-year sample representing this paper’s cohort of interest (individuals in same-gender marriages aged 65 and up) fails to meet the sample size requirement in any single year.



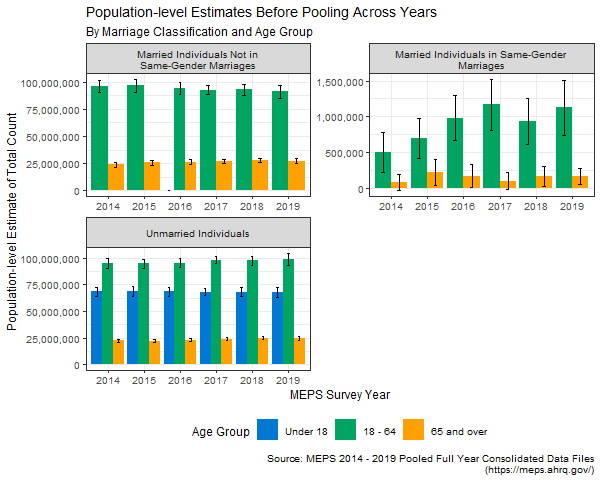
Additionally, we should be concerned about the statistical validity of population-level estimates that are computed by applying weights to very small cross-sectional subsets of the MEPS respondent data, especially when the subpopulation of interest (in our case, LGBTQ+ individuals over age 65) was sampled across demographic strata that have little to do with the demographic subsets we are attempting to study in this paper.

## Population-level Estimates Before Pooling

In the following table, we can see the population-level estimates for the total number of married individuals within the United States, broken out by MEPS survey year, which have been calculated based on the individual respondents in each group and their associated weighting. Furthermore, stratum-level variances are also used to compute a measure of the estimate’s precision, which is expressed as a standard error measurement, relative standard error (RSE), and the lower and upper bounds of the 95% confidence interval.

| **Counts of Individuals in Sample Before Pooling Across Years By Survey Year, Marriage Classification, and Age Group** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **MEPS Survey Year** | **Sample Size** | **Pop-lvl. Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | Under 18 | 2016 | 1 |  |  |  |  | 100.00% † |
| 18 - 64 | 2014 | 8,556 | 96,102,041 | 2,723,089 | 90,764,885 | 101,439,197 | 2.83% |
| 2015 | 8,892 | 96,787,353 | 2,959,551 | 90,986,740 | 102,587,967 | 3.06% |
| 2016 | 8,629 | 94,337,377 | 2,902,250 | 88,649,071 | 100,025,683 | 3.08% |
| 2017 | 7,968 | 92,659,230 | 2,119,318 | 88,505,442 | 96,813,018 | 2.29% |
| 2018 | 7,683 | 92,889,257 | 2,756,832 | 87,485,964 | 98,292,549 | 2.97% |
| 2019 | 7,165 | 91,319,125 | 3,006,026 | 85,427,423 | 97,210,826 | 3.29% |
| 65 and over | 2014 | 1,814 | 24,030,932 | 1,240,582 | 21,599,435 | 26,462,429 | 5.16% |
| 2015 | 1,995 | 25,698,911 | 1,125,244 | 23,493,474 | 27,904,348 | 4.38% |
| 2016 | 2,161 | 26,394,055 | 1,195,495 | 24,050,928 | 28,737,181 | 4.53% |
| 2017 | 2,292 | 26,795,556 | 1,028,101 | 24,780,514 | 28,810,598 | 3.84% |
| 2018 | 2,649 | 27,673,346 | 975,474 | 25,761,451 | 29,585,240 | 3.52% |
| 2019 | 2,651 | 27,438,639 | 1,022,391 | 25,434,789 | 29,442,489 | 3.73% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 2014 | 41 | 497,417 | 143,493 | 216,176 | 778,658 | 28.85% |
| 2015 | 57 | 701,225 | 144,287 | 418,427 | 984,024 | 20.58% |
| 2016 | 83 | 982,877 | 161,561 | 666,223 | 1,299,532 | 16.44% |
| 2017 | 102 | 1,166,348 | 181,834 | 809,959 | 1,522,736 | 15.59% |
| 2018 | 80 | 932,480 | 162,362 | 614,256 | 1,250,703 | 17.41% |
| 2019 | 72 | 1,125,354 | 196,043 | 741,117 | 1,509,590 | 17.42% |
| 65 and over | 2014 | 5 |  |  |  |  | 72.70% † |
| 2015 | 15 | 220,017 | 91,331 | 41,013 | 399,022 | 41.51% \* |
| 2016 | 11 | 167,152 | 81,976 | 6,481 | 327,822 | 49.04% \* |
| 2017 | 6 |  |  |  |  | 60.78% † |
| 2018 | 12 | 163,299 | 70,304 | 25,505 | 301,094 | 43.05% \* |
| 2019 | 13 | 166,481 | 56,654 | 55,441 | 277,522 | 34.03% \* |
| Unmarried Individuals | Under 18 | 2014 | 8,634 | 68,371,394 | 2,233,108 | 63,994,582 | 72,748,206 | 3.27% |
| 2015 | 8,599 | 68,513,378 | 2,288,072 | 64,028,839 | 72,997,917 | 3.34% |
| 2016 | 8,195 | 68,268,664 | 2,129,868 | 64,094,199 | 72,443,129 | 3.12% |
| 2017 | 7,311 | 67,897,667 | 1,725,171 | 64,516,394 | 71,278,941 | 2.54% |
| 2018 | 6,690 | 67,987,396 | 2,115,773 | 63,840,557 | 72,134,235 | 3.11% |
| 2019 | 5,906 | 67,791,411 | 2,423,037 | 63,042,345 | 72,540,476 | 3.57% |
| 18 - 64 | 2014 | 10,722 | 94,976,938 | 2,510,822 | 90,055,816 | 99,898,059 | 2.64% |
| 2015 | 10,783 | 94,417,804 | 2,193,317 | 90,118,982 | 98,716,627 | 2.32% |
| 2016 | 10,317 | 95,123,760 | 2,053,220 | 91,099,523 | 99,147,996 | 2.16% |
| 2017 | 9,231 | 98,134,737 | 1,876,166 | 94,457,519 | 101,811,956 | 1.91% |
| 2018 | 8,373 | 97,405,253 | 2,265,942 | 92,964,088 | 101,846,417 | 2.33% |
| 2019 | 7,936 | 98,620,261 | 2,955,216 | 92,828,144 | 104,412,379 | 3.00% |
| 65 and over | 2014 | 2,064 | 22,461,619 | 805,793 | 20,882,294 | 24,040,944 | 3.59% |
| 2015 | 2,232 | 22,157,603 | 789,809 | 20,609,605 | 23,705,601 | 3.56% |
| 2016 | 2,316 | 23,179,175 | 778,785 | 21,652,784 | 24,705,566 | 3.36% |
| 2017 | 2,404 | 24,088,160 | 772,400 | 22,574,283 | 25,602,036 | 3.21% |
| 2018 | 2,598 | 24,779,543 | 779,929 | 23,250,910 | 26,308,176 | 3.15% |
| 2019 | 2,611 | 24,709,246 | 888,509 | 22,967,800 | 26,450,692 | 3.60% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | | |

Additionally, we can use the population-level estimates and squared errors displayed in the table to construct a visualization of these estimates and the corresponding level of statistical variability around them, which is potentially more helpful in monitoring the data for opportunities where more rigorous investigation would bear statistically meaningful insights.



As in the chart above, and in subsequent visualizations of population-level estimates of key findings in this essay, each of the solid bars represents a population-level estimate of the statistic of interest for the entire US population. The error bars accompanying each solid bar represent the upper and lower bounds of the 95% confidence interval around the corresponding population-level estimate.

In other words, each solid bar represents an *estimate* of the population measure based on survey data; that is the bar is intended to represent a good (but not exact) guess at the “true” population-level measure of interest.

The error bars can be interpreted as expressing the level of variability around that guess. In other words, we are confident at a 95% level that the “true” population-level measure of interest, if we were able to survey the entire US population, falls somewhere in between the top and bottom of the associated error bar. As in most cases, estimates with larger underlying sample sizes (e.g., in this analysis, the cohort of individuals aged 18 – 64 not in same-gender marriages) will tend to be expressed with much less variability than estimates with smaller underlying sample sizes.

In many cases, the estimates of population-level statistics will appear to show meaningful differences between cohorts in this paper’s visualizations. It is important to also contextualize these statistical estimates by using the error bars. As you view the data visualizations that follow, you should make use of the error bars to question the degree of belief to which our estimates reflect “true” population-level differences between cohorts. For example, if the solid bars for two populations show different estimates, but the error bars overlap, a healthy degree of skepticism should be used when drawing conclusions about potential differences.

Finally, as you inspect the data visualizations in this paper, please refer to the corresponding data table in [Appendix A](#appendix-a-data-tables) for additional information about the estimates or their variability and statistical validity. Throughout the course of this paper, I will take several opportunities to cross-reference population-level estimates derived from MEPS data against available third-party data sources in order to provide some level of external validation.

## A Validation Example: Estimating the Number of Same-Gender Marriages in the US

As a validation exercise, we will first locate a population-level estimate of total counts of individuals in same-gender marriages in the table above from a MEPS survey year that does meet the MEPS statistical precision guidelines for sample size. We can then compare that estimate against comparable estimates derived from published findings which are not related to MEPS.

Let us take for example the data from 2016, which represents the US population one year after the landmark Supreme Court decision in *Obergefell v. Hodges* that effectively legalized same-gender marriages across the US. Despite the relative recency of this SCOTUS decision, several US states legally recognized same-gender marriages at the time, so the 2014 and 2015 PUFs do contain individuals in same-gender marriages even though same-gender marriages were not legally recognized nationwide until after the *Obergefell* decision.

In the visualization and accompanying data table above, we see that the population-level estimate of the number of individuals aged 18 - 64 in same-gender marriages in the US is 982,877. The corresponding estimate for individuals in same-gender marriages aged 65 and up is 167,152. It is statistically valid (in this case) to add these two estimates together to estimate the total number of individuals in same-gender marriages in the US at 1,150,029.

One external source we can use to validate this combined estimate of total individuals in same-gender marriages in the US in 2016 is the 2016 [American Community Survey](https://www.census.gov/programs-surveys/acs) 1-year estimate of this measurement, which places an [estimated count of individuals living in “Same-Sex Married Couple Households”](https://www.census.gov/content/dam/Census/library/publications/2021/demo/p70-167.pdf) (p. 22) at around 1,000,000 individuals. This is consistent with our combined estimate of the same measure.

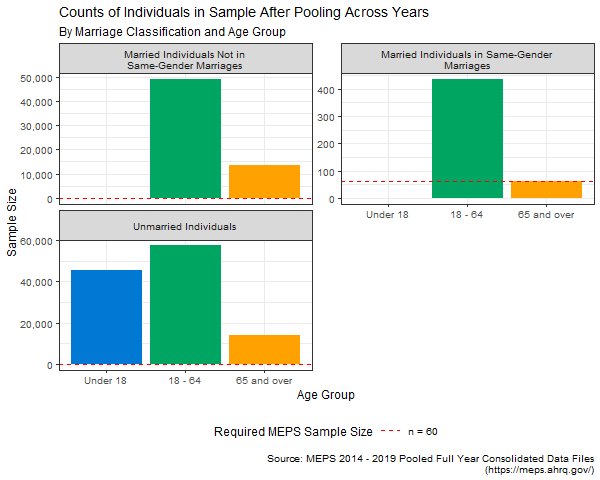
Finally, note that, in some years, the representative sample is so small for same-gender married individuals over age 65 that the computed lower bound of the 95% confidence interval extends into negative territory, which is nonsensical. Avoiding the presentation of estimates that are too imprecise to provide any useful information is the primary reasoning given by MEPS for imposing the RSE restriction in their statistical precision guidelines.

Displaying nonsensical error bars that extend into negative territory on the preceding visualization of population-level estimates is done for explanatory purposes only. Going forward, subsequent data visualizations and their corresponding data tables in this paper will not display any estimates for subgroups in which the RSE of the population-level estimate exceeds the 50% threshold specified in the MEPS statistical precision guidelines (denoted in corresponding data tables by the symbol “†”).

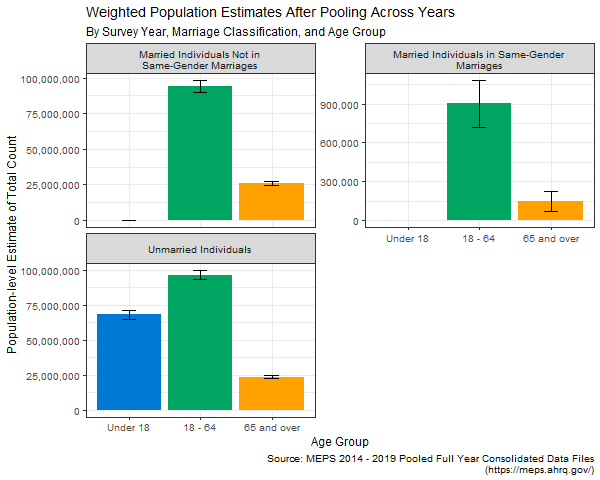
## Population-level Estimates After Pooling MEPS Data Years

Since our aim is to compare the healthcare experiences or expenses between LGBTQ+ subpopulations in same-gender marriages and non-LGBTQ+ subpopulations with a focus on individuals aged 65 and up, we will not be able to meet the basic MEPS precision guidelines described above without pooling data across multiple years. This is because any single-year MEPS files lack the required number of respondents (*n* >= 60) aged 65 and up and in same-gender marriages.

MEPS prescribes a methodology for pooling across multiple data years within [the documentation for the Pooled Linkage PUF](https://meps.ahrq.gov/data_stats/download_data/pufs/h036/h36u20doc.shtml). This PUF contains survey weights and variances at the sampling unit and demographic stratum level to enable pooling across multiple years. Sample sizes after pooling across 2014 - 2019 are shown in the figures below.



Once pooling from 2014 - 2019 is completed, we can see that both age groups in the same-gender marriage subpopulation meet the minimum sample size of 60 required by the MEPS statistical precision guidelines (*n* = 435 for the 18 - 64 age band, *n* = 62 for the over 65 age band). However, with just barely over 60 respondents in the latter group, we will encounter a good deal of variability around estimates of measurements for this cohort.



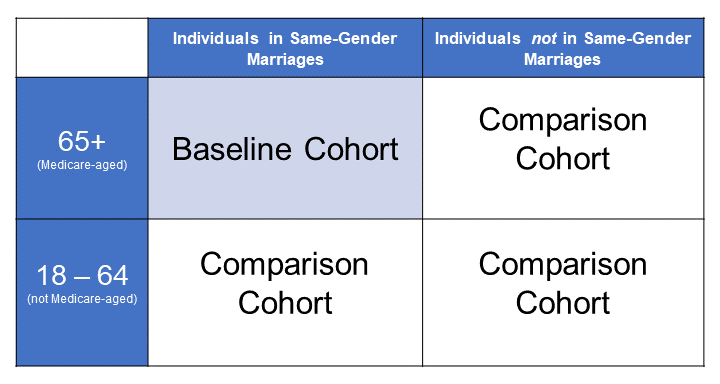
## Another Validation Example: Using Pooled MEPS Data

When using the pooled 2014 - 2019 data to compute population-level estimates, we arrive at an estimate of 1,051,043 total individuals in same-gender marriages within the US, arrived at by adding the estimated totals for each subgroup (900,950 for the “18 to 64” age band, plus 150,093 for the “65 and over” age band) as we did in the previous validation example.

Once again, we can compare this estimate to the findings from the [findings from the American Community Survey for 2019](https://www.census.gov/content/dam/Census/library/publications/2021/acs/acsbr-005.pdf) which reports the total estimated count of same-sex married individuals at 1,136,220 (two times the number of same-sex married couple *households* reported in Table 1, on page 2), which is relatively similar to our MEPS-derived estimate of the same quantity.

# Visualizing Healthcare Experiences for LGBTQ+ Subpopulations

Prior to performing any analysis of healthcare outcomes experienced by LGBTQ+ subpopulations, it’s important to first frame our visual analysis with the primary objective of calculating various statistical estimates calculated using the pooled MEPS for our baseline cohort (Medicare-aged individuals in same-gender marriages), and then comparing those estimates against the same statistical estimates calculated for three relevant comparison cohorts, as described in the image below.

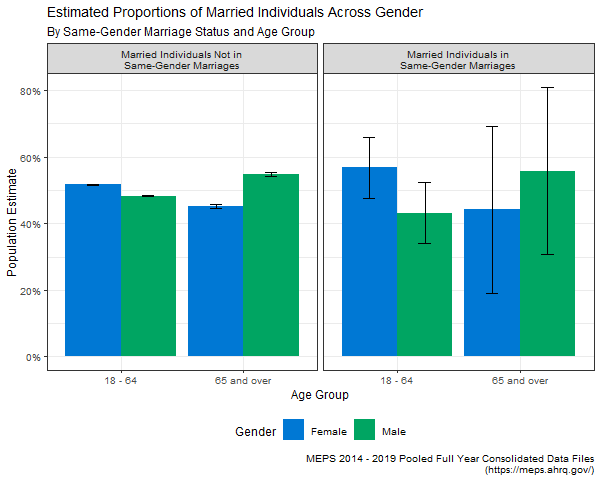


This approach is helpful to contextualize certain health-related outcomes or demographic compositions that are similar between some cohorts and perhaps will offer us a glimpse into the key drivers of differences we will observe between these groups.

## Exploring the Demographic Composition of LGBTQ+ Subpopulations

Meaningful differences in demographic composition between these cohorts can act as potential confounding factors when we set about analyzing potential differences in healthcare quality, patient experiences, and healthcare-related expenditures between these cohorts, so we’ll first start with a high-level overview of demographic comparisons between our baseline cohort and comparison cohorts.

### Gender



Despite the larger degree of uncertainty around estimates of gender proportions in the cohort of individuals in same-gender marriages, gender composition appears to be similar. We are not able to definitively claim any differences between gender proportions in the same-gender marriage cohorts (in the panel on the right) and their counterpart cohorts not in same-gender marriages (on the left). This is because the estimates of proportions on the left all fall within the error bars surrounding the corresponding estimates depicted on the right.

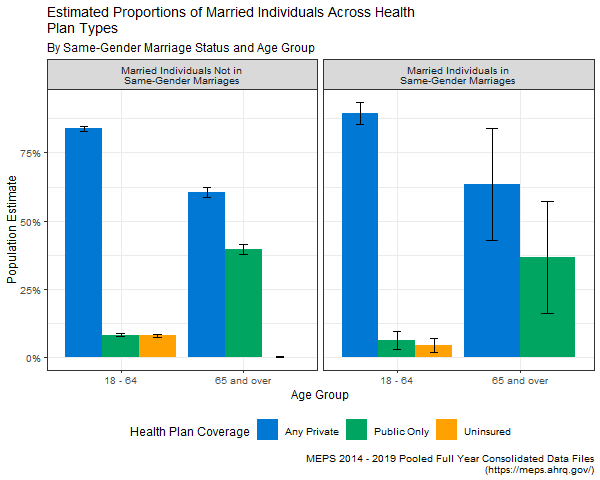
A recent poster ([Age Differences Among Coresidential Partners](https://www.census.gov/library/working-papers/2023/demo/SEHSD-WP2023-10.html)) published by the US Census Bureau and based on data from the 2021 American Community Survey found that the average age difference between opposite-gender married couples is 3.69 years, and that individuals in same-gender marriages tend to have a larger age difference than married individuals not in same-gender marriages. For instance, the average age difference between male-male married couples is 3.47 years (p<0.001) larger than the average age difference between opposite-gender couples and, similarly, the average age difference between female-female couples is 1.33 years (p<0.00) larger than the average age difference among opposite-gender married couples.

In constructing our baseline and comparison cohorts, we have drawn a line of demarcation at age 65. Past this line we expect to see a slightly greater proportion of men than women due to the average age gap in married couples in the US. The more pronounced differences in the visualization of gender distributions above between the two cohorts of individuals aged 65 and over and two cohorts of individuals aged 18 – 64 are consistent with our expectations.

### Health Plan Coverage

In the MEPS datasets, the three levels in the health plan coverage variable are defined as follows:

* **Any Private** includes individuals who have both Medicare and any other private comprehensive plan, such as a Medicare Supplement (aka “Medigap”) plan, a commercial employer-sponsored plan, or an ACA plan underwritten on an individual or family basis. This category also includes individuals over age 65 exclusively on a private plan, which includes Medicare Advantage and TRICARE beneficiaries.
* **Public only** includes individuals who do not have any other private supplemental coverage who are covered by traditional “fee-for-service” Original Medicare plans, Medicaid plans, or other public and state-sponsored plans (such as CHIP).
* **Uninsured** includes any individual with no private or public coverage.



There does not appear to be any significant differences between distributions of coverage rates among the cohorts. As [marital status is an important predictor of uninsured status](https://www.census.gov/newsroom/blogs/random-samplings/2014/09/married-with-health-insurance.html), it is useful for our purposes that the baseline and comparison cohorts within this visualization consist exclusively of married individuals. Nonetheless, it does appear that the uninsured rate for individuals in the 18 - 64 age band in same-gender marriages is only slightly more than half of the uninsured rate for individuals in the 18 - 64 age band not in same-gender marriages. Due to the non-overlapping confidence intervals for these estimates, this could be a statistic of interest but also could be confounded by other factors, such as race and ethnicity, which we will investigate subsequently.

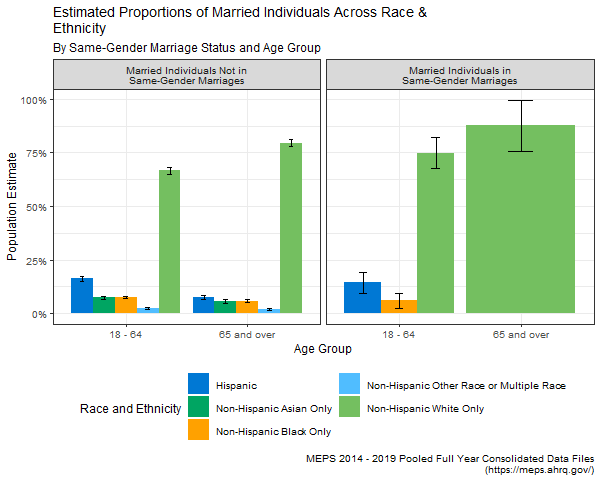
The MEPS data for the period of 2014 - 2019 does not appear to contain even one sample respondent who is 65 or older and in a same-gender marriage, and uninsured. Therefore, an estimate of the uninsured rate for the cohort of individuals over 65 in a same-gender marriage cannot be determined from this data. For individuals over 65 not in same-gender marriages, the estimate of the uninsured rate is centered at 0.19% (with a 95% CI of 0.04% - 0.11%).

Estimates of coverage type distributions for all cohorts are consistent with findings from a [2019 statistical report](https://www.cdc.gov/nchs/data/nhsr/nhsr159-508.pdf) published by the US Department of Health and Human Services based on data from another survey.

### Race and Ethnicity

MEPS survey data does not offer a “Latine” option for responses to questions surveying racial identity, but does poll respondents for an ethnicity response, coded as either “Hispanic” or “Not Hispanic” with another accompanying variable that breaks respondents who indicate an ethnicity of “Hispanic” into subgroups based on geographic origin. As a refresher, more information about the difference between coding “Hispanic” as an individual’s ethnicity versus “Latine” as an individual’s racial identity can found in an article from the Office of Equity, Diversity & Inclusion at the Duke University School of Medicine, [“Ask the OEDI: Hispanic, Latino, Latina, Latinx - Which is Best?”](https://medschool.duke.edu/blog/ask-oedi-hispanic-latino-latina-latinx-which-best).

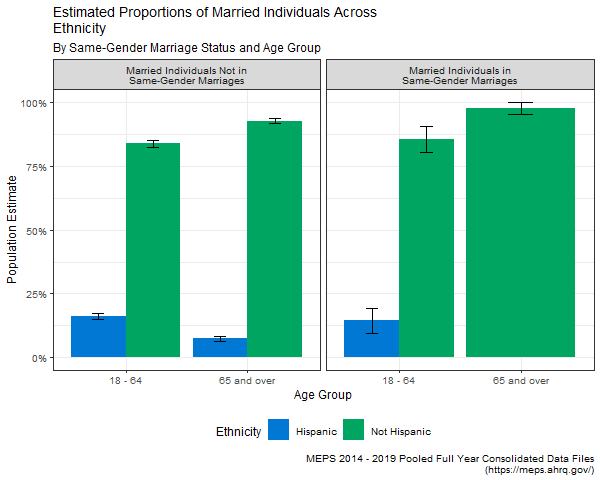
In this paper, Black is capitalized in racial, cultural, or ethnic contexts, where white is not capitalized in these contexts, following [current AP style guidelines](https://blog.ap.org/announcements/why-we-will-lowercase-white).



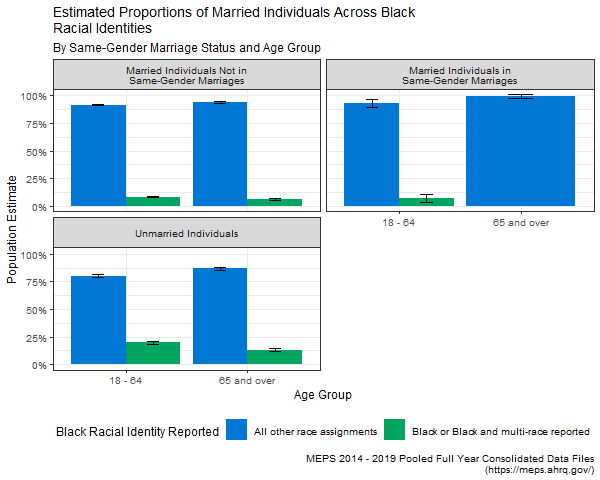
Distributions of proportions of race and ethnicity status appear to be relatively comparable across all cohorts, where comparison subsets are available for comparison. Many of the race and ethnicity breakouts in the same-gender marriage cohort are suppressed from the graph due to large RSE values associated with these estimates, as required by the MEPS statistical precision. Any differences between cohorts observed here appear to be in line with the usual expected differences we would expect. Marital status is known to be predicted by age, race, and ethnicity factors as follows:

* **Across all race and ethnicity groups, fewer individuals in the US are marrying now versus in the past.** In 2022, [the US Census Bureau published findings](https://www.census.gov/newsroom/press-releases/2022/americas-families-and-living-arrangements.html) that 34% of individuals age 15 and up (the youngest age at which one can marry in some US states) have never been married. This is an increase from 23% observed in 1950. [Marriage rates in the US have persistently declined over time and are at an all-time low today](https://www.pewresearch.org/social-trends/2021/10/05/rising-share-of-u-s-adults-are-living-without-a-spouse-or-partner/).
* **Across all age groups, Black individuals have lower rates of marriage than other racial and ethnic groups.** The growing gap in marriage rates is a well-studied topic in sociology and demography journals and is thought to be caused by a number of factors, primarily “labor market disparities and other structural disadvantages that black people face, especially black men” ([“The Growing Racial and Ethnic Divide in U.S. Marriage Patterns”](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4850739/)).

Breaking estimates of the distribution of race and ethnicity proportions out along so many lines can cause estimates of statistical precision to become very high, especially in groups where estimates are computed on smaller samples. Therefore, it is helpful to break out key racial and ethnic identifiers in less granular subsets.



While exercising some caution around generalizing, as “Hispanic” is a broad group, there do not appear to be significant differences between the comparison cohort and baseline cohorts in the distributions of marriage by age group and race.

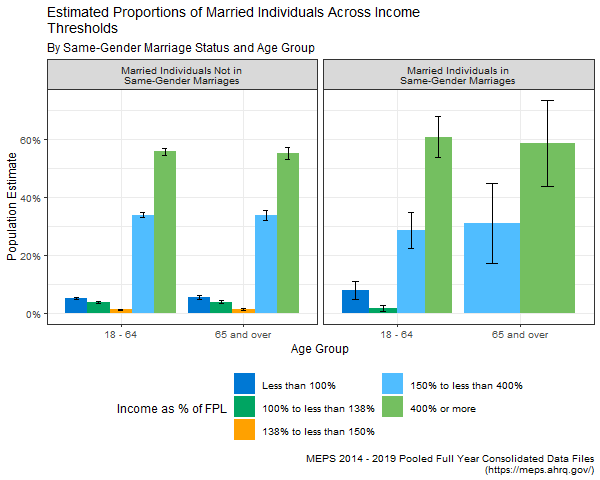


In this chart, I have chosen to add a third facet displaying distributions of Black-identifying individuals among additional cohorts which contain unmarried individuals in order to capture a visual representation of the Black marriage gap within this data.

### Income Level

The following visualization compares our baseline and comparison cohorts against one another expressed in terms of total income across all family members divided by the applicable federal poverty level. The federal poverty level (FPL) [an income measure generated each year by the US Department of Health and Human Services](https://www.healthcare.gov/glossary/federal-poverty-level-fpl) for the purpose of determining the eligibility of individuals and families for certain state and federal health plans, assistance programs, and other benefits. The HHS federal poverty level is based on [statistical poverty thresholds determined and promulgated annually by the US Census Bureau](https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines/frequently-asked-questions-related-poverty-guidelines-poverty) each year, which are determined at the household level based on family size, number of children, and in some cases, the presence of older individuals. Therefore, an individual’s total family income as a percentage of FPL is calculated using a value of FPL that varies across individuals based on these factors.

In states that have elected to expanded Medicaid coverage (as of this writing, 41 states including DC), individuals in households below 138% of the applicable FPL are generally eligible for Medicaid coverage based on income determination alone. In contrast, individuals in households at or above 400% FPL are generally ineligible for ACA premium tax credits or Medicaid benefits. The binned levels of income as a percentage of FPL used in the visualization below are relevant to eligibility thresholds for various state- and federally funded or reduced-cost health plans.



Although the distributions of income as a percentage of FPL appear to be fairly consistent between all cohorts, it appears there could be a meaningful difference (i.e., only a tiny overlap in associated confidence intervals) for estimates of total proportions earning less than 100% of FPL between the cohort of individuals aged 18 - 64 in same-gender marriages and the cohort of individuals aged 18 - 64 not in same-gender marriages. The same comparison is not available for the cohorts consisting of Medicare-aged individuals due to a lack of statistical credibility for the cohort of individuals in same-gender marriages aged 65 and up. This difference could be further investigated using a broader survey that contains these data elements and is administered to a larger number of respondents, such as the American Community Survey.

## Exploring Healthcare Outcomes for LGBTQ+ Subpopulations

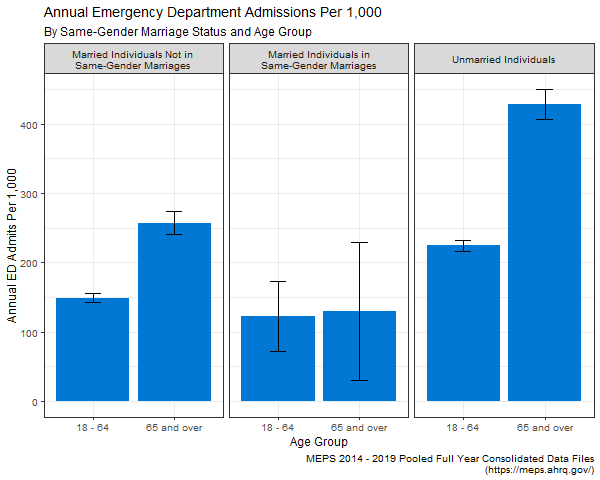
The preceding visual comparisons of demographic measures between our baseline and comparison cohorts help us to better understand the notion of intersectionality between the many subpopulations within the broader LGBTQ+ population in the US. In the following section, we will explore whether marital status is a predictor of healthcare outcomes experienced by our comparison and baseline cohorts. We will also investigate whether healthcare outcomes differ significantly between individuals in same-gender marriages and individuals not in same-gender marriages for both age group cohorts.

It is also the case that LGBTQ+ individuals can possess unique healthcare needs or face different barriers to access to healthcare, both of which can move the needle on the cost of healthcare. This is particularly true for individuals in retirement because non-working, Medicare-aged individuals generally have less access to financial resources and are more likely to face one or more highly prevalent chronic conditions such as heart disease, diabetes, or hypertension, which can lead to high-cost encounters if not properly managed.

### Emergency Department Utilization

Emergency Department (ED) utilization is a key statistic of interest because hospital admissions that start with the ED tend to be more indicative of hospital utilization that is potentially avoidable, thus presenting unnecessary financial and quality of life burdens for Medicare-aged individuals. Hospital organizations routinely report total ED visits on both a total aggregate basis as well as a same-facility basis. For example, total ED utilization is listed in the most recent (as of this writing) [quarterly earnings report](https://investor.hcahealthcare.com/news/news-details/2023/HCA-Healthcare-Reports-First-Quarter-2023-Results/default.aspx) from [HCA Healthcare](https://hcahealthcare.com/about/), a publicly-traded hospital organization with more than 182 hospitals and 2,300+ care delivery sites in the US and UK.

Due to the relative rarity of hospital emergency room admission, ED admits are typically expressed in terms of annualized admits per 1,000 members for a given time period. The visualization below uses MEPS data pooled across 2014 - 2019 to build a statistical representation of ED utilization over a period of one year. Results are consistent with [annual emergency room utilization reports from Kaiser Family Foundation](https://www.kff.org/other/state-indicator/emergency-room-visits-by-ownership/).



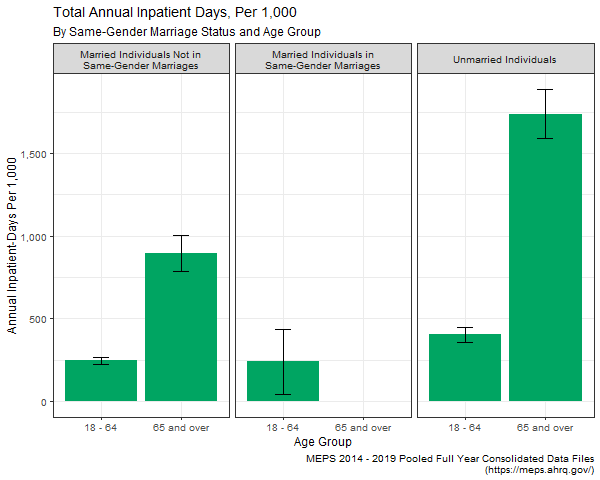
In this visualization, I chose once again to include a panel containing unmarried individuals to showcase how marital status could be predictive of hospital emergency room utilization. Additionally, it appears as if more investigation could be warranted regarding the relatively low ED utilization rate in the cohort of individuals 65 and over in same-gender marriages; though there is no overlap in the confidence interval boundaries for this estimate and the equivalent estimates of other cohorts of individuals over age 65, it would be important to control (at least) for gender and racial confounders before drawing any conclusion.

### Total Impatient Days

Another important measure in evaluating health outcomes and utilization patterns in a population is the total number of days (or, sometimes, overnights) that all individuals within the cohort of interest spent in inpatient hospital facilities for each admission. This measure is often also reported as “total hospital (in)patient-days.” This statistic, much like total ED utilization, is frequently reported by hospital organizations because it is very predictive of other measures concerning quality, patient outcomes, and the total cost of care delivered in inpatient hospital encounters.

Moreover, measures of total impatient days are also highly predictive of hospital readmissions. A related concept, inpatient length of stay, is a component of one of the oldest indices, [the LACE index](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2845681/), which is used to predict post-discharge mortality or unplanned readmission after discharge from an inpatient facility. Reducing readmissions is a key focus for the Centers for Medicare and Medicaid Services (CMS), the federal agency that oversees or regulates Medicare and Medicaid administration, which [published findings in 2014](https://www.kff.org/wp-content/uploads/sites/2/2014/10/brennan.pdf) claiming that nearly one in five Part A Medicare beneficiaries enrolled in fee-for-service Medicare returns to the hospital within 30 days of being discharged. In this same study, CMS attributed $26 billion per year to the cost of these readmissions, of which $17 billion was associated with potentially avoidable readmissions.

While it is possible to investigate readmission rates directly using MEPS data, the methodology is complex and involves the use of [additional data files](https://meps.ahrq.gov/mepsweb/data_stats/download_data_files_detail.jsp?cboPufNumber=HC-213D). Therefore, I have chosen to examine only total impatient days within our baseline and comparison cohorts. Like to ED utilization, measures of total hospital inpatient days are commonly expressed per 1,000 patients/members over a time period. The visualization below uses MEPS data pooled across 2014 - 2019 to build a statistical representation of total inpatient days per 1,000 patients over a period of one year. Results are consistent with [annual inpatient-days per 1,000](https://www.kff.org/other/state-indicator/inpatient-days-by-ownership/) reported annually by Kaiser Family Foundation.



Similar to prior visualizations, I chose to include the panel containing estimates of total length of stay for unmarried individuals to once again highlight the fact that marital status is well-known in population health academic literature to be predictive of measures of length of stay in hospital inpatient facilities. [A study over 40 thousand adult hospital patients in 1988 - 1991](https://pubmed.ncbi.nlm.nih.gov/7503606/) found that, after controlling for illness severity, age, gender, race, and diagnosis type, “hospital charges and length of stay were 5% and 8% higher (P < .001), respectively, for unmarried than for married patients.” The study also found that, overall, 40% of unmarried individuals were admitted with high- or moderate-severity conditions as compared to only 32% in married individuals.

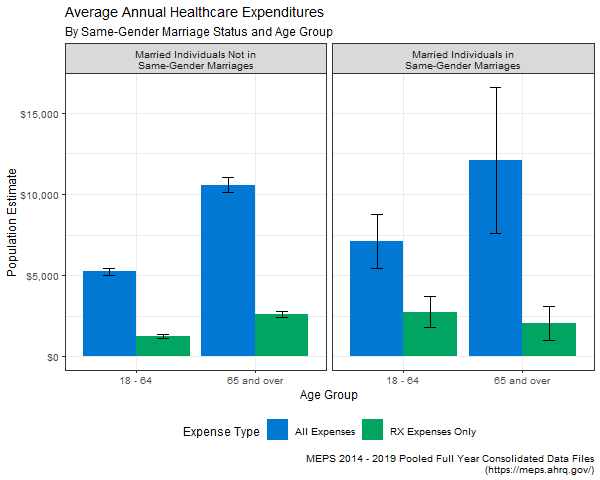
Because total hospital days per 1,000 and higher severity inpatient admissions are related, the above visualization suggests that unmarried individuals experience inpatient admissions with a higher average level of severity than married individuals. [A more recent study](https://journals.sagepub.com/doi/10.1177/2151459319898648) of just under 2,000 patients aged 55 and over admitted to a hospital inpatient facility for orthopedic trauma found that “single and widowed patients experienced 1.36 and 1.30 times longer length of hospital stay than their married counterparts, respectively.”

Estimates of total length of stay for the cohort of individuals aged 65 and over in same-gender marriages has a RSE that exceeds the MEPS-required threshold of 0.5 so it is suppressed from the data visualization above. (Please refer to the associated data table in [Appendix A](#appendix-a-data-tables) for additional information on this and all other visualizations in this paper.)

### Total Annual Healthcare Expenditures & Drug Costs

In the 2022 Inflation Reduction Act passed by Congress and signed into law by President Biden, [several reforms to the Medicare Part D program](https://www.milliman.com/en/insight/inflation-reduction-act-health-plans-and-part-d-sponsors-need-to-know) are set to be implemented in the coming years. The Part D reforms reflect a genuinely bipartisan perception of political urgency around reducing the cost burden of access to low-cost and lifesaving pharmaceutical therapies for Medicare-aged individuals, many of whom are living with one or more chronic or behavioral health conditions.

A substantial portion of the total medical expenditures incurred by individuals in retirement is attributable to pharmacy spend, as we can see in the visualizations of total healthcare spend below, which include breakout estimates of total individual healthcare spend as well as pharmacy spend alone. Pharmacy spend reflects the total amount paid for prescription drugs, covering both out-of-pocket expenditures as well as payments made by third-party payers, including both Part B and Part D drugs for Medicare beneficiaries.

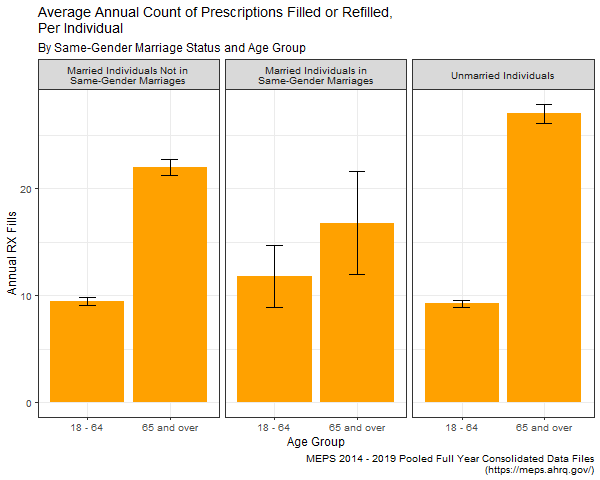


This visualization has two key insights. First, that total pharmacy spend appears to be higher for Medicare-aged individuals compared to pharmacy expenditures incurred by individuals aged 18 - 64. And second, that there appears to be a difference in both total healthcare spend and total pharmacy spend between the cohort of individuals aged 18 - 64 in same-gender marriages and the cohort of married individuals aged 18 - 64 not in same-gender marriages. Additional analysis of this difference should consider age, race, and gender effects.

One explanation for this difference in expenditures could relate to the high costs faced by LGBTQ+ individuals interested in starting a family. There can be [large healthcare-related expenses](https://www.familyequality.org/resources/building-lgbtq-families-price-parenthood/) (in the tens of thousands of dollars) associated with various surrogacy approaches, in-vitro fertilization (IVF), or reciprocal IVF. Further analysis of this difference should also explore the degree to which high-cost family planning procedures and pharmacy therapies may contribute to the higher overall average healthcare spend in the cohort of individuals ages 18 - 64 in same-gender marriages.

### Average Pharmacy Utilization

The following visualization addresses average utilization of pharmaceutical therapies across our cohorts of interest by estimating the average number of fills or refills per individual in a year.

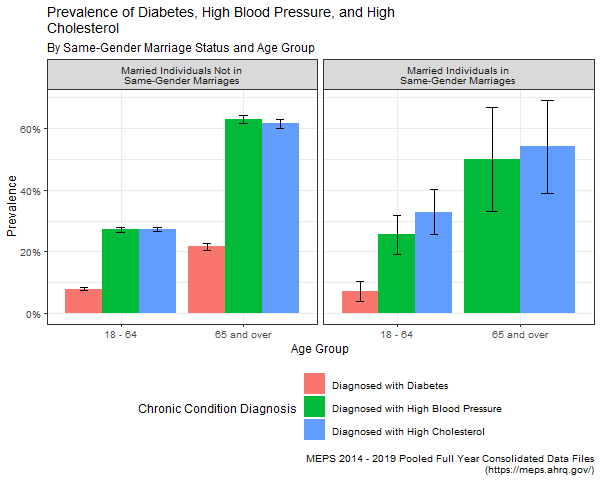


The distributions of average pharmacy utilization per individual presented by the visualization above appear consistent with [the same measure reported by Kaiser Family Foundation](https://www.kff.org/health-costs/state-indicator/retail-rx-drugs-per-capita/).

### Prevalence of Chronic Conditions

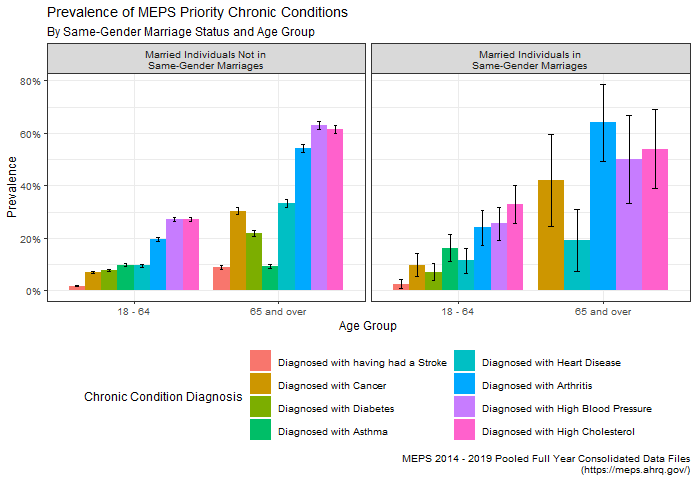
Medicare-aged individuals often make use of low-cost generic medications to manage their chronic health conditions such as diabetes, hyperlipidemia (high cholesterol), or hypertension (high blood pressure). Some examples of very common drugs include non-insulin blood glucose reducing agents like [metformin](https://mor.nlm.nih.gov/RxNav/search?searchBy=String&searchTerm=metformin) used for treating Type 2 Diabetes, statins like [atorvastatin](https://mor.nlm.nih.gov/RxNav/search?searchBy=String&searchTerm=atorvastatin) (brand name “Lipitor”) used for treating high cholesterol, or ACE inhibitors like [lisinopril](https://mor.nlm.nih.gov/RxNav/search?searchBy=String&searchTerm=lisinopril) (brand names “Prinivil” or “Zestril”) to treat hypertension.

[Hypertension](https://pubmed.ncbi.nlm.nih.gov/29386200/), [type 2 diabetes](https://diabetesjournals.org/care/article/41/5/917/36518/Economic-Costs-of-Diabetes-in-the-U-S-in-2017), and [high cholesterol](https://pubmed.ncbi.nlm.nih.gov/27787352/) are clinical conditions that are frequently associated with individuals who incur healthcare expenditures at above average levels. Therefore, if Medicare-aged individuals can manage these conditions with regular visits to their primary care provider(s) and by adherence to low-cost drug therapies such as the drugs listed above, then they are less likely to incur these potentially avoidable medical costs, ultimately helping them to safeguard their financial security and well-being in retirement.



The visualization above displays estimates of the prevalence of these select chronic conditions for our baseline and comparison cohorts. Please note that the individuals reporting a diabetes diagnosis excludes individuals with gestational diabetes. With the available sample, there do not appear to be differences in the distributions of prevalence of these chronic conditions that is worth noting, given the larger error bars in the right-hand plot corresponding to the cohorts of individuals in same-gender marriages.

MEPS also contains data on many other clinical conditions in a collection of “priority condition variables,” which include the three chronic conditions above as well as several more. These conditions are of importance “because of their relatively high prevalence, and because generally accepted standards for appropriate clinical care have been developed” ([MEPS 2019 FYC File Codebook](https://meps.ahrq.gov/data_stats/download_data/pufs/h216/h216doc.shtml#Person255)). Many of these conditions are also known to lead to higher-than-average costs for both Medicare-aged individuals and the healthcare system when these conditions are not clinically managed. The MEPS priority conditions that have a relatively high rate of prevalence in Medicare-aged populations are summarized in the figure below.



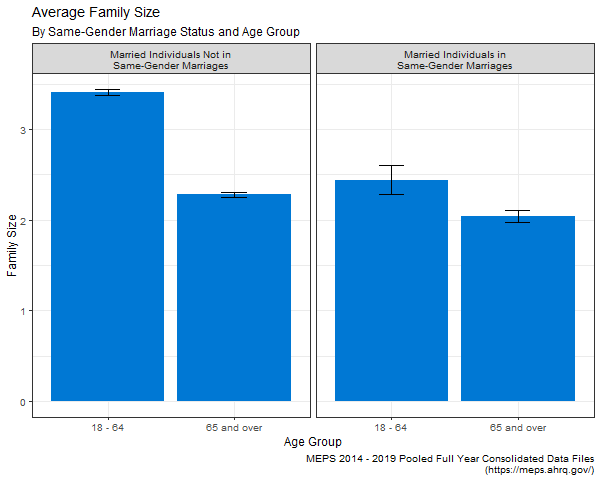
While once again, distributions of estimates of prevalence for all these major conditions do appear to be fairly consistent across our baseline and comparison cohorts, more analysis might be warranted in studying the lower prevalence of heart disease in the cohort of individuals aged 65 and up in same-gender marriages, which appears much lower than the estimate of prevalence for the cohort of individuals aged 65 and up not in same-gender marriages.

It is possible that racial identity has a confounding influence on our observations of lower heart disease prevalence rates in the cohort of individuals aged 65 and up in same-gender marriages. As we know from above, Black individuals are far less represented in cohorts of married individuals. Furthermore, recent Milliman study ([Racial disparities in healthcare: Cardiovascular conditions](https://us.milliman.com/en/insight/racial-disparities-in-cardiovascular-conditions)) found that Black men and women had higher rates of prevalence than white counterparts for three conditions in particular – late effects of cerebrovascular disease, non-hypertensive congestive heart failure, and hypertension with complications – across all insurance lines and age groups. Due to this potential confounding influence, additional studies of this finding should be designed appropriately to control for racial identity.

### Average Family Size

One feature of a family unit that can drive the total cost of care at the individual level is family size. Larger families within the same dwelling unit can help take care of one another when sick, coordinate transportation to and from sites where healthcare is provided, manage childcare duties so that adults are able to arrange for healthcare services, and so on. On the other hand, saving for retirement is likely to be much more challenging when a couple is faced with the large number of additional expenditures associated with raising and taking care of children.

Several studies have shown a linkage between medication adherence and family support, particularly among families in low-income socioeconomic strata. In one study of 367 randomly sampled adult rural hospital patients diagnosed with type 2 diabetes, researchers found [a medium-to-high level of medication adherence associated with strong levels of family support](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8693738/). Another meta-analysis of literature found [evidence of association](https://pubmed.ncbi.nlm.nih.gov/29470115/) between weaker social relationships and increased rates of hospital readmission and longer hospital stays.



The measurement of family size in this visualization is limited to respondents in the same dwelling unit who indicate they are related to one another. Perhaps as expected, the estimate of average family size for the cohort of individuals in same-gender marriages aged 18 - 64 is about one child less than the estimate of average family size for individuals aged 18 - 64 not in same-gender marriages.

# Conclusion

Due to the lack of data currently available that describes the healthcare experiences specific to LGBTQ+ populations, we must continue to be creative about sourcing information that can help build policy and insurance products to better prepare LGBTQ+ individuals for financial prosperity and well-being in retirement.

Some examples of other potentially interesting variables in the context of examining retirement-related outcomes alongside the ones I’ve shown in this paper include:

MILDIF31 DIFFICULTY WALKING A MILE - RD 3/1   
MIAGED AGE OF DIAGNOSIS-HEART ATTACK(MI)   
WHTLGSPK WHAT LANGUAGE SPOKEN OTHER THAN ENGLISH   
DDNWRK19 # DAYS MISSED WORK DUE TO ILL/INJ 2019   
ADRESP42 SAQ 12 MOS: DR SHOWED RESPECT   
PROBPY42 FAMILY HAVING PROB PAYING MEDICAL BILLS

While we’ve only just skimmed the surface of what MEPS has to offer, MEPS provides a large and useful amount of data, collected annually for nearly three decades through a rigorous survey framework. As we saw in this paper, survey data can impose limitations on the degree of certainty in our findings, but on the other hand, surveys like MEPS can still be used to aid key decision-makers in analyzing the impacts that social determinants of health have on retirement-related outcomes for all cross-sections of the US Medicare-aged population.

While isolating MEPS respondents based on same-gender marriage status is one way of highlighting any differences in key healthcare measures between this population and non-LGBTQ+ populations, perhaps a better way of understanding these differences is simply by adding [SOGI](https://eca.state.gov/files/bureau/sogi_terminology.pdf) questions and terminology to the standard MEPS questionnaire. The US Census Bureau took this very same action in July 2021, when it began [surveying respondents for information on sexual orientation and gender identity in its Household Pulse Survey](https://www.census.gov/library/stories/2021/08/household-pulse-survey-updates-sex-question-now-asks-sexual-orientation-and-gender-identity.html). This very act of broadening the survey questionnaire led to [findings from the US Census Bureau](https://www.pbs.org/newshour/economy/the-census-bureaus-first-ever-data-on-lgbtq-people-indicates-deep-disparities) that LGBTQ+-identifying individuals were more likely to “have lost employment, not have enough to eat, be at elevated risk of eviction or foreclosure, and face difficulty paying for basic household expenses” as compared to their non-LGBTQ+ counterparts.

We also have seen how important of a predictor an individual’s marital status can be for measures of certain risks that can lead to increased healthcare spend, such as measures of total inpatient length-of-stay, uninsured rates, rates of readmission, and emergency room utilization. And while there is likely a lot of correlation “noise” to be sorted out when analyzing the connection between marital status and health outcomes, particularly among potential confounding influences like race, age, and gender, it still might be the case that a consistent and clear path to legally recognized marriage for all individuals in the US could have beneficial healthcare-related outcomes.

# Appendix A: Data Tables

| **Counts of Individuals in Sample Before Pooling Across Years By Survey Year, Marriage Classification, and Age Group** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **MEPS Survey Year** | **Sample Size** | **Pop-lvl. Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | Under 18 | 2016 | 1 |  |  |  |  | 100.00% † |
| 18 - 64 | 2014 | 8,556 | 96,102,041 | 2,723,089 | 90,764,885 | 101,439,197 | 2.83% |
| 2015 | 8,892 | 96,787,353 | 2,959,551 | 90,986,740 | 102,587,967 | 3.06% |
| 2016 | 8,629 | 94,337,377 | 2,902,250 | 88,649,071 | 100,025,683 | 3.08% |
| 2017 | 7,968 | 92,659,230 | 2,119,318 | 88,505,442 | 96,813,018 | 2.29% |
| 2018 | 7,683 | 92,889,257 | 2,756,832 | 87,485,964 | 98,292,549 | 2.97% |
| 2019 | 7,165 | 91,319,125 | 3,006,026 | 85,427,423 | 97,210,826 | 3.29% |
| 65 and over | 2014 | 1,814 | 24,030,932 | 1,240,582 | 21,599,435 | 26,462,429 | 5.16% |
| 2015 | 1,995 | 25,698,911 | 1,125,244 | 23,493,474 | 27,904,348 | 4.38% |
| 2016 | 2,161 | 26,394,055 | 1,195,495 | 24,050,928 | 28,737,181 | 4.53% |
| 2017 | 2,292 | 26,795,556 | 1,028,101 | 24,780,514 | 28,810,598 | 3.84% |
| 2018 | 2,649 | 27,673,346 | 975,474 | 25,761,451 | 29,585,240 | 3.52% |
| 2019 | 2,651 | 27,438,639 | 1,022,391 | 25,434,789 | 29,442,489 | 3.73% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 2014 | 41 | 497,417 | 143,493 | 216,176 | 778,658 | 28.85% |
| 2015 | 57 | 701,225 | 144,287 | 418,427 | 984,024 | 20.58% |
| 2016 | 83 | 982,877 | 161,561 | 666,223 | 1,299,532 | 16.44% |
| 2017 | 102 | 1,166,348 | 181,834 | 809,959 | 1,522,736 | 15.59% |
| 2018 | 80 | 932,480 | 162,362 | 614,256 | 1,250,703 | 17.41% |
| 2019 | 72 | 1,125,354 | 196,043 | 741,117 | 1,509,590 | 17.42% |
| 65 and over | 2014 | 5 |  |  |  |  | 72.70% † |
| 2015 | 15 | 220,017 | 91,331 | 41,013 | 399,022 | 41.51% \* |
| 2016 | 11 | 167,152 | 81,976 | 6,481 | 327,822 | 49.04% \* |
| 2017 | 6 |  |  |  |  | 60.78% † |
| 2018 | 12 | 163,299 | 70,304 | 25,505 | 301,094 | 43.05% \* |
| 2019 | 13 | 166,481 | 56,654 | 55,441 | 277,522 | 34.03% \* |
| Unmarried Individuals | Under 18 | 2014 | 8,634 | 68,371,394 | 2,233,108 | 63,994,582 | 72,748,206 | 3.27% |
| 2015 | 8,599 | 68,513,378 | 2,288,072 | 64,028,839 | 72,997,917 | 3.34% |
| 2016 | 8,195 | 68,268,664 | 2,129,868 | 64,094,199 | 72,443,129 | 3.12% |
| 2017 | 7,311 | 67,897,667 | 1,725,171 | 64,516,394 | 71,278,941 | 2.54% |
| 2018 | 6,690 | 67,987,396 | 2,115,773 | 63,840,557 | 72,134,235 | 3.11% |
| 2019 | 5,906 | 67,791,411 | 2,423,037 | 63,042,345 | 72,540,476 | 3.57% |
| 18 - 64 | 2014 | 10,722 | 94,976,938 | 2,510,822 | 90,055,816 | 99,898,059 | 2.64% |
| 2015 | 10,783 | 94,417,804 | 2,193,317 | 90,118,982 | 98,716,627 | 2.32% |
| 2016 | 10,317 | 95,123,760 | 2,053,220 | 91,099,523 | 99,147,996 | 2.16% |
| 2017 | 9,231 | 98,134,737 | 1,876,166 | 94,457,519 | 101,811,956 | 1.91% |
| 2018 | 8,373 | 97,405,253 | 2,265,942 | 92,964,088 | 101,846,417 | 2.33% |
| 2019 | 7,936 | 98,620,261 | 2,955,216 | 92,828,144 | 104,412,379 | 3.00% |
| 65 and over | 2014 | 2,064 | 22,461,619 | 805,793 | 20,882,294 | 24,040,944 | 3.59% |
| 2015 | 2,232 | 22,157,603 | 789,809 | 20,609,605 | 23,705,601 | 3.56% |
| 2016 | 2,316 | 23,179,175 | 778,785 | 21,652,784 | 24,705,566 | 3.36% |
| 2017 | 2,404 | 24,088,160 | 772,400 | 22,574,283 | 25,602,036 | 3.21% |
| 2018 | 2,598 | 24,779,543 | 779,929 | 23,250,910 | 26,308,176 | 3.15% |
| 2019 | 2,611 | 24,709,246 | 888,509 | 22,967,800 | 26,450,692 | 3.60% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | | |

| **Data Table for 'Counts of Individuals in Sample After Pooling Across Years By Marriage Classification and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Sample Size** | **Pop-lvl. Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | Under 18 | 1 |  |  |  |  | 100.00% † |
| 18 - 64 | 48,893 | 94,015,730 | 2,042,224 | 90,013,045 | 98,018,416 | 2.17% |
| 65 and over | 13,562 | 26,338,573 | 720,851 | 24,925,731 | 27,751,415 | 2.74% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 435 | 900,950 | 90,969 | 722,655 | 1,079,245 | 10.10% |
| 65 and over | 62 | 150,093 | 39,229 | 73,206 | 226,980 | 26.14% |
| Unmarried Individuals | Under 18 | 45,335 | 68,138,319 | 1,548,979 | 65,102,376 | 71,174,261 | 2.27% |
| 18 - 64 | 57,362 | 96,446,459 | 1,717,047 | 93,081,109 | 99,811,809 | 1.78% |
| 65 and over | 14,225 | 23,562,558 | 540,214 | 22,503,758 | 24,621,357 | 2.29% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Gender By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Gender** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Male | 48.28% | 0.11% | 48.07% | 48.50% | 0.23% |
| Female | 51.72% | 0.11% | 51.50% | 51.93% | 0.21% |
| 65 and over | Male | 54.88% | 0.32% | 54.26% | 55.50% | 0.58% |
| Female | 45.12% | 0.32% | 44.50% | 45.74% | 0.70% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Male | 43.15% | 4.68% | 33.96% | 52.33% | 10.86% |
| Female | 56.85% | 4.68% | 47.67% | 66.04% | 8.24% |
| 65 and over | Male | 55.83% | 12.84% | 30.66% | 80.99% | 23.00% |
| Female | 44.17% | 12.84% | 19.01% | 69.34% | 29.07% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Health Plan Types By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Health Plan Coverage** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Any Private | 83.79% | 0.47% | 82.88% | 84.71% | 0.56% |
| Public Only | 8.22% | 0.29% | 7.66% | 8.79% | 3.51% |
| Uninsured | 7.98% | 0.32% | 7.36% | 8.61% | 3.98% |
| 65 and over | Any Private | 60.35% | 0.93% | 58.52% | 62.18% | 1.54% |
| Public Only | 39.46% | 0.93% | 37.63% | 41.29% | 2.36% |
| Uninsured | 0.19% | 0.04% | 0.11% | 0.27% | 22.57% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Any Private | 89.42% | 2.13% | 85.25% | 93.60% | 2.38% |
| Public Only | 6.14% | 1.70% | 2.81% | 9.47% | 27.64% |
| Uninsured | 4.43% | 1.30% | 1.88% | 6.98% | 29.34% |
| 65 and over | Any Private | 63.35% | 10.43% | 42.92% | 83.79% | 16.46% |
| Public Only | 36.65% | 10.43% | 16.21% | 57.08% | 28.45% |
| Uninsured |  |  |  |  | NA |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Gender By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Race & Ethnicity** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Hispanic | 16.17% | 0.66% | 14.87% | 17.46% | 4.083% |
| Non-Hispanic White Only | 66.65% | 0.79% | 65.11% | 68.19% | 1.182% |
| Non-Hispanic Black Only | 7.53% | 0.33% | 6.89% | 8.18% | 4.364% |
| Non-Hispanic Asian Only | 7.37% | 0.36% | 6.67% | 8.07% | 4.849% |
| Non-Hispanic Other Race or Multiple Race | 2.28% | 0.21% | 1.88% | 2.68% | 8.995% |
| 65 and over | Hispanic | 7.31% | 0.49% | 6.35% | 8.28% | 6.739% |
| Non-Hispanic White Only | 79.57% | 0.79% | 78.02% | 81.12% | 0.996% |
| Non-Hispanic Black Only | 5.88% | 0.41% | 5.08% | 6.67% | 6.917% |
| Non-Hispanic Asian Only | 5.49% | 0.47% | 4.58% | 6.41% | 8.510% |
| Non-Hispanic Other Race or Multiple Race | 1.75% | 0.24% | 1.27% | 2.23% | 14.013% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Hispanic | 14.45% | 2.52% | 9.51% | 19.39% | 17.433% |
| Non-Hispanic White Only | 74.91% | 3.72% | 67.61% | 82.21% | 4.970% |
| Non-Hispanic Black Only | 5.90% | 1.72% | 2.53% | 9.27% | 29.130% |
| Non-Hispanic Asian Only |  |  |  |  | 55.201% † |
| Non-Hispanic Other Race or Multiple Race |  |  |  |  | 55.703% † |
| 65 and over | Hispanic |  |  |  |  | 55.515% † |
| Non-Hispanic White Only | 87.67% | 6.09% | 75.74% | 99.60% | 6.945% |
| Non-Hispanic Black Only |  |  |  |  | 101.694% † |
| Non-Hispanic Asian Only |  |  |  |  | 94.534% † |
| Non-Hispanic Other Race or Multiple Race |  |  |  |  | 98.815% † |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Ethnicity By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Ethnicity** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Hispanic | 16.17% | 0.66% | 14.87% | 17.46% | 4.083% |
| Not Hispanic | 83.83% | 0.66% | 82.54% | 85.13% | 0.787% |
| 65 and over | Hispanic | 7.31% | 0.49% | 6.35% | 8.28% | 6.739% |
| Not Hispanic | 92.69% | 0.49% | 91.72% | 93.65% | 0.532% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Hispanic | 14.45% | 2.52% | 9.51% | 19.39% | 17.433% |
| Not Hispanic | 85.55% | 2.52% | 80.61% | 90.49% | 2.944% |
| 65 and over | Hispanic |  |  |  |  | 55.515% † |
| Not Hispanic | 97.76% | 1.24% | 95.32% | 100.20% | 1.272% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Black Racial Identities By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Ethnicity** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Black or Black and multi-race reported | 8.39% | 0.34% | 7.72% | 9.06% | 4.095% |
| All other race assignments | 91.61% | 0.34% | 90.94% | 92.28% | 0.375% |
| 65 and over | Black or Black and multi-race reported | 6.19% | 0.41% | 5.38% | 7.00% | 6.696% |
| All other race assignments | 93.81% | 0.41% | 93.00% | 94.62% | 0.442% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Black or Black and multi-race reported | 7.07% | 1.91% | 3.32% | 10.83% | 27.054% |
| All other race assignments | 92.93% | 1.91% | 89.17% | 96.68% | 2.060% |
| 65 and over | Black or Black and multi-race reported |  |  |  |  | 101.694% † |
| All other race assignments | 99.14% | 0.88% | 97.41% | 100.86% | 0.887% |
| Unmarried Individuals | 18 - 64 | Black or Black and multi-race reported | 19.88% | 0.64% | 18.63% | 21.13% | 3.211% |
| All other race assignments | 80.12% | 0.64% | 78.87% | 81.37% | 0.796% |
| 65 and over | Black or Black and multi-race reported | 13.20% | 0.60% | 12.04% | 14.37% | 4.514% |
| All other race assignments | 86.80% | 0.60% | 85.63% | 87.96% | 0.687% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Estimated Proportions of Married Individuals Across Income Thresholds By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Income as % of FPL** | **Population Estimate** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Less than 100% | 5.12% | 0.21% | 4.70% | 5.53% | 4.162% |
| 100% to less than 138% | 3.76% | 0.16% | 3.44% | 4.07% | 4.274% |
| 138% to less than 150% | 1.27% | 0.07% | 1.13% | 1.41% | 5.677% |
| 150% to less than 400% | 34.02% | 0.49% | 33.06% | 34.99% | 1.448% |
| 400% or more | 55.84% | 0.61% | 54.64% | 57.03% | 1.095% |
| 65 and over | Less than 100% | 5.60% | 0.36% | 4.90% | 6.30% | 6.410% |
| 100% to less than 138% | 3.94% | 0.28% | 3.38% | 4.49% | 7.227% |
| 138% to less than 150% | 1.44% | 0.18% | 1.08% | 1.79% | 12.575% |
| 150% to less than 400% | 33.82% | 0.82% | 32.21% | 35.43% | 2.425% |
| 400% or more | 55.21% | 1.00% | 53.25% | 57.16% | 1.806% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Less than 100% | 7.90% | 1.60% | 4.76% | 11.04% | 20.264% |
| 100% to less than 138% | 1.80% | 0.59% | 0.64% | 2.95% | 32.722% \* |
| 138% to less than 150% |  |  |  |  | 63.476% † |
| 150% to less than 400% | 28.75% | 3.19% | 22.49% | 35.01% | 11.108% |
| 400% or more | 60.85% | 3.60% | 53.80% | 67.90% | 5.912% |
| 65 and over | Less than 100% |  |  |  |  | 63.726% † |
| 100% to less than 138% |  |  |  |  | 72.144% † |
| 138% to less than 150% |  |  |  |  | NA |
| 150% to less than 400% | 31.01% | 7.04% | 17.22% | 44.81% | 22.699% |
| 400% or more | 58.75% | 7.62% | 43.81% | 73.69% | 12.971% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Annual Emergency Department Admissions Per 1,000 By Same-Gender Marriage Status and Age Group'** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Annual ED Admits Per 1,000** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | 149.39 | 3.43 | 142.66 | 156.13 | 2.30% |
| 65 and over | 257.23 | 8.25 | 241.05 | 273.40 | 3.21% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 122.87 | 25.52 | 72.85 | 172.90 | 20.77% |
| 65 and over | 130.22 | 50.83 | 30.60 | 229.84 | 39.03% \* |
| Unmarried Individuals | 18 - 64 | 224.42 | 4.30 | 216.00 | 232.85 | 1.92% |
| 65 and over | 428.11 | 11.10 | 406.35 | 449.88 | 2.59% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | |

| **Data Table for 'Total Annual Inpatient Days, Per 1,000 By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Annual Inpatient-Days Per 1,000** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** | **Population Estimate** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | 248 | 10.76 | 227.14 | 269.32 | 4.335% | 248.23 |
| 65 and over | 896 | 55.87 | 786.58 | 1,005.60 | 6.235% | 896.09 |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 240 | 99.31 | 45.80 | 435.08 | 41.303% \* | 240.44 |
| 65 and over | 692 |  |  |  | 55.400% † |  |
| Unmarried Individuals | 18 - 64 | 403 | 21.87 | 360.36 | 446.08 | 5.423% | 403.22 |
| 65 and over | 1,737 | 76.18 | 1,588.01 | 1,886.65 | 4.385% | 1,737.33 |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Average Annual Healthcare Expenditures By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Expense Type** | **Estimated Total Annual Expenses** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | All Expenses | $5,229.68 | $106.10 | $5,021.72 | $5,437.64 | 2.03% |
| RX Expenses Only | $1,263.28 | $55.53 | $1,154.45 | $1,372.10 | 4.40% |
| 65 and over | All Expenses | $10,562.94 | $232.60 | $10,107.05 | $11,018.84 | 2.20% |
| RX Expenses Only | $2,623.17 | $91.57 | $2,443.70 | $2,802.65 | 3.49% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | All Expenses | $7,119.59 | $841.99 | $5,469.32 | $8,769.86 | 11.83% |
| RX Expenses Only | $2,760.82 | $498.75 | $1,783.29 | $3,738.34 | 18.07% |
| 65 and over | All Expenses | $12,099.68 | $2,295.59 | $7,600.40 | $16,598.96 | 18.97% |
| RX Expenses Only | $2,050.64 | $527.07 | $1,017.60 | $3,083.68 | 25.70% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Average Annual Count of Prescriptions Filled or Refilled, Per Individual By Same-Gender Marriage Status and Age Group'** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Annual RX Fills** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | 9.45 | 0.18 | 9.11 | 9.80 | 1.87% |
| 65 and over | 21.98 | 0.38 | 21.24 | 22.73 | 1.73% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 11.82 | 1.47 | 8.93 | 14.70 | 12.47% |
| 65 and over | 16.77 | 2.47 | 11.94 | 21.61 | 14.71% |
| Unmarried Individuals | 18 - 64 | 9.24 | 0.16 | 8.93 | 9.54 | 1.69% |
| 65 and over | 27.04 | 0.46 | 26.14 | 27.93 | 1.68% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | |

| **Data Table for 'Prevalence of Diabetes, High Blood Pressure, and High Cholesterol By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Chronic Condition Status** | **Prevalence** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Diagnosed with Diabetes | 7.93% | 0.20% | 7.55% | 8.32% | 2.501% |
| Diagnosed with High Blood Pressure | 27.14% | 0.38% | 26.39% | 27.89% | 1.408% |
| Diagnosed with High Cholesterol | 27.20% | 0.35% | 26.51% | 27.88% | 1.282% |
| 65 and over | Diagnosed with Diabetes | 21.67% | 0.58% | 20.53% | 22.81% | 2.678% |
| Diagnosed with High Blood Pressure | 62.97% | 0.71% | 61.58% | 64.36% | 1.125% |
| Diagnosed with High Cholesterol | 61.54% | 0.77% | 60.03% | 63.06% | 1.256% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Diagnosed with Diabetes | 7.11% | 1.63% | 3.91% | 10.31% | 22.984% |
| Diagnosed with High Blood Pressure | 25.51% | 3.21% | 19.22% | 31.80% | 12.585% |
| Diagnosed with High Cholesterol | 32.87% | 3.70% | 25.61% | 40.13% | 11.267% |
| 65 and over | Diagnosed with Diabetes |  |  |  |  | 53.895% † |
| Diagnosed with High Blood Pressure | 49.92% | 8.54% | 33.18% | 66.66% | 17.113% |
| Diagnosed with High Cholesterol | 54.01% | 7.75% | 38.82% | 69.21% | 14.354% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Prevalence of MEPS Priority Chronic Conditions By Same-Gender Marriage Status and Age Group'** | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Chronic Condition Status** | **Prevalence** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | Diagnosed with having had a Stroke | 1.79% | 0.10% | 1.58% | 1.99% | 5.8350% |
| Diagnosed with Cancer | 7.05% | 0.22% | 6.63% | 7.48% | 3.0807% |
| Diagnosed with Diabetes | 7.93% | 0.20% | 7.55% | 8.32% | 2.5005% |
| Diagnosed with Asthma | 9.78% | 0.24% | 9.31% | 10.25% | 2.4661% |
| Diagnosed with Heart Disease | 9.56% | 0.25% | 9.07% | 10.05% | 2.6086% |
| Diagnosed with Arthritis | 19.66% | 0.36% | 18.94% | 20.37% | 1.8475% |
| Diagnosed with High Blood Pressure | 27.14% | 0.38% | 26.39% | 27.89% | 1.4082% |
| Diagnosed with High Cholesterol | 27.20% | 0.35% | 26.51% | 27.88% | 1.2817% |
| 65 and over | Diagnosed with having had a Stroke | 9.01% | 0.39% | 8.25% | 9.77% | 4.3114% |
| Diagnosed with Cancer | 30.33% | 0.70% | 28.96% | 31.70% | 2.2984% |
| Diagnosed with Diabetes | 21.67% | 0.58% | 20.53% | 22.81% | 2.6784% |
| Diagnosed with Asthma | 9.31% | 0.43% | 8.46% | 10.16% | 4.6613% |
| Diagnosed with Heart Disease | 33.35% | 0.74% | 31.91% | 34.79% | 2.2083% |
| Diagnosed with Arthritis | 54.17% | 0.70% | 52.80% | 55.55% | 1.2987% |
| Diagnosed with High Blood Pressure | 62.97% | 0.71% | 61.58% | 64.36% | 1.1247% |
| Diagnosed with High Cholesterol | 61.54% | 0.77% | 60.03% | 63.06% | 1.2563% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | Diagnosed with having had a Stroke | 2.54% | 0.87% | 0.83% | 4.26% | 34.3199% \* |
| Diagnosed with Cancer | 9.86% | 2.27% | 5.41% | 14.31% | 23.0034% |
| Diagnosed with Diabetes | 7.11% | 1.63% | 3.91% | 10.31% | 22.9842% |
| Diagnosed with Asthma | 16.18% | 2.63% | 11.01% | 21.34% | 16.2825% |
| Diagnosed with Heart Disease | 11.54% | 2.43% | 6.77% | 16.31% | 21.0836% |
| Diagnosed with Arthritis | 24.01% | 3.34% | 17.46% | 30.57% | 13.9211% |
| Diagnosed with High Blood Pressure | 25.51% | 3.21% | 19.22% | 31.80% | 12.5846% |
| Diagnosed with High Cholesterol | 32.87% | 3.70% | 25.61% | 40.13% | 11.2674% |
| 65 and over | Diagnosed with having had a Stroke |  |  |  |  | 89.7839% † |
| Diagnosed with Cancer | 41.91% | 8.93% | 24.40% | 59.41% | 21.3153% |
| Diagnosed with Diabetes |  |  |  |  | 53.8951% † |
| Diagnosed with Asthma |  |  |  |  | 61.9764% † |
| Diagnosed with Heart Disease | 19.10% | 6.04% | 7.26% | 30.95% | 31.6319% \* |
| Diagnosed with Arthritis | 64.03% | 7.48% | 49.38% | 78.69% | 11.6763% |
| Diagnosed with High Blood Pressure | 49.92% | 8.54% | 33.18% | 66.66% | 17.1130% |
| Diagnosed with High Cholesterol | 54.01% | 7.75% | 38.82% | 69.21% | 14.3536% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | | |

| **Data Table for 'Average Family Size By Same-Gender Marriage Status and Age Group'** | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| **Marriage Classification** | **Age Group** | **Family Size** | **Standard Error** | **95% CI Lower Bound** | **95% CI Upper Bound** | **Relative Standard Error (RSE)** |
| Married Individuals Not in Same-Gender Marriages | 18 - 64 | 3.41 | 0.02 | 3.38 | 3.44 | 0.4675% |
| 65 and over | 2.28 | 0.01 | 2.25 | 2.31 | 0.6375% |
| Married Individuals in Same-Gender Marriages | 18 - 64 | 2.44 | 0.08 | 2.28 | 2.61 | 3.4149% |
| 65 and over | 2.04 | 0.03 | 1.98 | 2.11 | 1.6555% |
| From MEPS Precision Standards Guidelines: \* "Estimate can be reported but flagged with an \* to indicate that its precision is questionable." † "Estimate should not be reported or displayed in tables due to extremely large sampling error." These rows are generally not reflected in accompanying data visualizations. | | | | | | |

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