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RESEARCH BRIEF

Comparing Estimates of the Uninsurance Rate in Massachusetts from Survey Data

November 2017

Summary

- **Issue:** The uninsurance rate for Massachusetts is available from several state and federal surveys, which provide slightly different estimates.
- **Objective**: To compare methodologies across selected surveys and examine factors that may contribute to those differences.
- **Study Design:** Comparison of survey objective, timing, design and fielding, and post-survey data processing as potential factors driving differences in uninsurance estimates across surveys.
- **Key Findings**: Despite many differences between survey methods, uninsurance estimates for both the overall population and non-elderly adults in Massachusetts 2015 were similar and consistently low across surveys.

Massachusetts's 2006 health reform legislation and the Affordable Care Act of 2010 were designed to increase health insurance coverage for the population and to improve access to health care. Though the number of uninsured people—the uninsurance rate—is just one measure of the effects of these laws, it is arguably the most important metric.[1,2] Over the years, a number of uninsurance survey estimates have been produced for the Commonwealth of Massachusetts, including the Center for Health Information and Analysis's Massachusetts Health Insurance Survey (MHIS), Massachusetts Department of Public Health's Behavioral Risk Factor Surveillance System (MA BRFSS), Blue Cross Blue Shield of Massachusetts Foundation's Massachusetts Health Reform Survey (MHRS), the U.S. Census Bureau's American Community Survey (ACS), the U.S. Census Bureau and Bureau of Labor Statistics' Current Population Survey's Annual Social Economic Supplement (CPS), and the U.S. Centers for Disease Control and Prevention's National Health Interview Survey (NHIS).

These surveys, though all fielded in Massachusetts, provide slightly different estimates of the uninsurance rate. A variety of methodological factors may contribute to the variation in uninsurance estimates from these surveys, including survey objective, target population and sample frame, sample size and response rate, questionnaire design, and post-survey data processing. This research brief compares the methodologies across surveys and explores how these differences may explain any potential variation in uninsurance estimates. This brief includes data from 2006-2015 and is a follow-up to the report, *Estimates of the Uninsurance Rate in Massachusetts from Survey*

Data: Why Are They So Different?, published in 2008 by the Massachusetts Division of Health Care Finance and Policy in conjunction with the Urban Institute.

This brief presents the following:

- overview of selected surveys that estimate uninsurance rates in Massachusetts
- review of potential factors that may contribute to variation in these survey estimates
- currently published uninsurance estimates from the selected surveys

Overview of Selected Surveys that Estimate Uninsurance Rates in Massachusetts

Several federal and state surveys produce estimates of the rates of health insurance coverage in Massachusetts. At the federal level, two surveys provide uninsurance estimates: ACS and NHIS (see Table 1 and Appendix A for more information). ACS produces national as well as state-level uninsurance estimates for every state and had a sample size of nearly 48,000 respondents for Massachusetts in 2015.[3] Although the NHIS sample design is stratified by state, the NHIS state-level sample is usually too small to provide estimates with acceptable precision for Massachusetts.[4] It is important to note that prior to 2013, CPS[i] also produced national and state-level uninsurance estimates. However, beginning in 2013, state-level estimates are no longer published with CPS data. As a result, this survey is not included in this brief.

In addition to federal estimates, like some other states (e.g., California, Colorado, Minnesota, Oregon, Wisconsin), Massachusetts also has its own surveys that produce estimates on uninsurance. These state-level surveys are MHIS and MHRS. MA BRFSS, a joint federal and state survey program, also produces estimates on uninsurance.[ii] Among these three surveys, only MHIS reports uninsurance estimates on the entire non-institutionalized population (see Table 1 and Appendix A for more information).

Some states conduct state-level surveys because they offer the flexibility to tailor instruments to accommodate programmatic or policy changes in specific focus areas.[5] In addition, many state surveys allow for more targeted study of sub-populations, such as by geographical areas or racial and ethnic groups, than do federal surveys. State surveys also may have more flexibility to conduct specialized and detailed studies, such as recontact surveys, about specific policy areas and topics.[6,7] For instance, in Massachusetts, the consistently low uninsurance rate has shifted the focus in health care to access, utilization, and affordability—topics not always addressed or addressed in depth in the federal surveys. In 2016, a MHIS recontact survey on underinsurance and medical debt was conducted to study affordability.

[i] CPS/ASEC is conducted annually by the U.S. Census Bureau and Bureau of Labor Statistics to assess labor market characteristics, including health insurance coverage for both children and adults. The CPS uninsurance measure is used by the Census Bureau's reporting of national estimates in *Current Population Reports.*

[ii] MA BRFSS is a joint federal and state survey program. Uninsurance estimates produced by MA BRFSS are based on a combination of a CDC core question and a set of Massachusetts-specific questions. Details are available at http://www.mass.gov/eohhs/gov/departments/dph/programs/admin/dmoa/health-survey/brfss/.

TABLE 1. BRIEF DESCRIPTION OF SELECTED SURVEYS

American Community Survey (ACS)	■ Conducted annually by the U.S. Census Bureau to provide current social, economic, demographic and housing information about America's communities. ■ Measures the insurance coverage of children and adults using a single question with eight coverage type options.
National Health Interview Survey (NHIS)	■ Conducted annually by the U.S. Centers for Disease Control and Prevention to assess national health status and behaviors. ■ Measures the insurance coverage of children and adults using multiple questions.
Massachusetts Health Insurance Survey (MHIS)	■ Conducted biennially by the Massachusetts Center for Health Information and Analysis to assess health insurance coverage, health care access, utilization, and affordability. ■ Measures the insurance coverage of children and adults using multiple questions.
Massachusetts Health Reform Survey (MHRS)	■ Conducted periodically[iii] by the Blue Cross Blue Shield Foundation of Massachusetts to assess the impact of state and federal health care reform efforts on health insurance coverage, health care access and affordability. ■ Measures the insurance coverage of non-elderly adults (ages 19-64) using multiple questions.
Massachusetts Behavioral Risk Factor Surveillance System (MA BRFSS)	■ Conducted annually by the Massachusetts Department of Public Health in conjunction with the Centers for Disease Control and Prevention to assess the health status, health risk factors, and health behaviors of residents. ■ Measures the insurance coverage of non-elderly adults (ages 18-64) using a funneling approach on health coverage plans that are specific to Massachusetts.[iv]

Comparisons of Survey Methodology

The state and federal surveys mentioned above use varying strategies to produce uninsurance estimates for Massachusetts. Several methodological elements can be used to compare these surveys including differences in target population and sample frame, sample sizes and response rates, survey objectives and questions, post-survey data processing, and changes in survey methodology. It is important to consider these factors when interpreting insurance coverage estimates and making comparisons between surveys. This section describes these selected surveys in greater detail and compares the specific survey elements that may contribute to any variation in uninsurance estimates.

[iii] MHRS has been fielded in 2006, 2007, 2008, 2009, 2010, 2012, 2013, 2015, and will be fielded again in 2018.

[iv] MA BRFSS uses a CDC core question to screen for insurance coverage, followed by a few state-added questions on sources of coverage for those who report they have insurance coverage. Details are available at http://www.mass.gov/eohhs/docs/dph/behavioral-risk/survey-12.pdf.

Target Population and Sample Frame

Who is the target population?

The five survey estimates covered in this brief represent the non-institutionalized population in Massachusetts. Both federal surveys, ACS and NHIS, cover the entire population. Of the state surveys, only MHIS covers the entire population; MHRS focuses only on the non-elderly adult population, ages 19 to 64. MA BRFSS, representing a state and federal collaborative effort, mainly covers the adult population, ages 18 and older.

What are the sample frame, mode, and frequency for selected surveys?

An important element of survey design is the sampling method which are the methods used to select and reach participants. The recent MHIS, MHRS, and MA BRFSS use a dual frame random digit dialing (RDD) landline and cellphone sample. All three surveys collect information over telephone at different time intervals. Beginning in 2015, MHIS is conducted on a biennial basis. MHRS is conducted periodically, and MA BRFSS is conducted annually with a sample drawn on a monthly basis.

Additionally, MHIS, MHRS and MA BRFSS oversample specific populations. Oversampling strategies are designed to increase the number of interviews completed with low income and uninsured respondents,[8] but does not bias results because of weighting, discussed in a later section. Due to the very low incidence of being uninsured among the Massachusetts population, the MHIS oversampling strategies are specifically designed and fine-tuned to yield a sample that better represents the state population with regards to health insurance coverage status, including hard-to-reach residents that do not have any coverage. The MHIS oversamples landlines in areas with higher concentrations of low-income residents and oversamples respondents with prepaid cell phones not attached to a permanent account.[9] MHRS oversamples low income (defined as income <300% FPL) and moderate income (defined as income 300-500% FPL) non-elderly adults.[10]The MA BRFSS oversamples selected municipalities with higher proportions of non-white populations to attain better information about minority population groups.[11] The geographic oversampling approach of MA BRFSS lies with its main goals of producing sub-state level estimates of disease prevalence, risk factors, and preventive behaviors in high-risk communities.[12]

In contrast, the ACS uses an address-based sample (ABS). It uses the Census Bureau's Master Address File[v] as the source of its sample selection, and data is collected via mail, internet, telephone, and in-person follow-up for non-respondents on a monthly basis.[13] Relative to RDD samples, ABS tends to capture a greater share of respondents with higher socioeconomic status, who tend to have higher levels of health insurance coverage.[14,15]

The NHIS uses an area-based multistage sampling approach for selecting a household for interview, and a person within the household is then selected for an in-person interview.[16,17] In its 2015 sample design, as in prior years, the survey oversamples Black, Asian, and Hispanic persons. The NHIS sampling frame consists of three non-overlapping parts: the unit frame (a list of addresses purchased from a vendor), the area frame (geographic areas that do not have city-style addresses, and geographic areas where the unit frame was not considered to be a

[v] The Master Address File (MAF) is a database maintained by the Census Bureau containing a listing of residential, group quarters, and commercial addresses in the U.S. and Puerto Rico. The MAF is normally updated twice each year with the Delivery Sequence Files (DSF) provided by the U.S. Postal Service; in 2014, however, the MAF was updated only once. https://www2.census.gov/programs-surveys/acs/tech_docs/accuracy/ACS_Accuracy_of_Data_2015.pdf

sufficient sampling resource), and the college dormitory frame (college residence hall spaces in the NHIS sample primary sampling units).[18] Data is collected with in-person interviews on a monthly basis.

What are the sample sizes and response rates?

Sample sizes and response rates are another key feature to consider when comparing different surveys. Of the surveys covered in this brief, ACS has the largest sample size, sampling about 3.5 million addresses nationwide every year.[19] For Massachusetts, their sample size was 47,197 respondents in 2015. Completion of ACS by selected participants is required by law, resulting in a very high response rate each year. In 2015, their Massachusetts response rate was 95.6% for housing units and 92.6% for group quarters. In contrast, participation in the other selected surveys is voluntary and therefore, response rates are lower compared to ACS.

In 2015, MHIS had a sample size of 5,002 respondents and a response rate of 24.6%, MA BRFSS sampled 9,294 respondents and had a 39.8% response rate, and MHRS sampled 2,014 respondents with a response rate of 20.6%. State-level sample size and response rate information is not publicly available from NHIS (see Appendix A for more information).

Survey Objectives and Questions

Do survey objectives matter?

Some researchers suggest that when health insurance is not a primary topic in the survey, respondents' attention may be diverted away from health-related content and therefore respondents may provide less accurate responses to health insurance questions.[20,21,22] Of the surveys referenced in this brief, MHIS, MHRS, MA BRFSS, and NHIS are focused on public health and health care topics. For both MHIS and MHRS, the primary purpose is to document and track health insurance coverage, health care access and use, and health care affordability for residents. MA BRFSS aims to collect data on health risk factors, health behaviors, and emerging public health issues among adults. NHIS assesses health status, behaviors and access for all residents. In contrast, ACS's primary purpose is to collect and produce economic, social, demographic, and housing estimates.

Does reference period matter?

While some surveys collect information on insurance status at a point-in-time (current), some collect multiple measures using different reference periods, including past 6 months and past 12 months. Point-in-time estimates document rates at a particular moment in time, whereas questions about coverage over time measure the stability of coverage. Since it is easier for respondents to report on current information than report on information from earlier periods, the length of the recall period can result in differences in measurement errors across the surveys.[23,24,25] Hence, the reference period of survey questions is a key consideration when comparing insurance coverage estimates. While the most recent ACS and MA BRFSS ask respondents to report only on insurance coverage at the time of the interview, MHIS, MHRS, and NHIS ask respondents to report on insurance at the time of the interview as well as to recall periods of coverage in the past 12 months (Table 2).

TABLE 2. REFERENCE PERIODS* OF INSURANCE COVERAGE ESTIMATES FOR SELECTED SURVEYS

	MHIS	MHRS	MA BRFSS	ACS	NHIS
Point-in-time	x	x	x	x	x
Past 12 months	x	x			x

* Based on reported reference periods. Other references periods may be available from these surveys.

Do survey questions matter?

The ways that insurance questions are asked can lead to variation in uninsurance estimates. MHIS, MHRS, and NHIS all use the multi-item approach, where respondents are asked about each source of coverage separately through multiple questions. MA BRFSS uses the funneling approach. Respondents are first asked if they have any insurance coverage at all, and depending on their response, are then asked the specific type of coverage they have. ACS, which begins with a hardcopy mail survey, uses a single item with multiple coverage options to assess a respondent's current insurance status.

The strength of the multi-item approach over the single item approach is the ability to avoid recall problems and issues with respondents not considering some types of coverage to be insurance, but this approach could also lead to respondent fatigue, thereby resulting in the underreporting of coverage types later in the series of questions.[26,27] Using the funneling approach, respondents may have different interpretations of health insurance coverage, which could misclassify respondents' coverage status.[28]

Another consideration driving the variation in uninsurance estimates is the use of an insurance verification question, which explicitly asks respondents who fail to respond yes to any coverage question if they *do not* have health insurance. This survey question is used to confirm that a respondent does not have insurance coverage and is important for accurately counting the uninsured.[29] Surveys that use this verification question may capture more insured respondents than surveys that do not use this question.[30] With the exception of ACS, all other surveys reviewed in this brief use an insurance verification question.

Additionally, using state-specific program names in the questions can help a respondent accurately select their coverage type. The use of state-specific program names is especially important for accurately counting respondents with public insurance.[31,32] For instance, a respondent may not know that they have public insurance, but they can positively identify the Massachusetts-specific MassHealth insurance type.[33] Thus, surveys that use state-specific program names may produce estimates that differ from surveys that use national program names, such as Medicare and Medicaid.[34] With the exception of ACS, all other surveys described in this brief utilize state-specific program names.

Does question placement matter?

Question placement involves the location of the insurance section in the overall survey. More reliable information on health insurance is expected of surveys that focus on health insurance coverage and place health insurance questions relatively early in the instrument when the interviewer and respondent are sharp and alert.[35] Information collected later in the survey may be less accurate due to respondent fatigue.[36] Moreover, respondents' answers to

questions earlier in the survey tend to frame their responses to questions later in the survey.[37,38] Therefore, questions not focused on health coverage that appear early in a survey may influence responses to health coverage questions later in the survey. For example, a respondent who is first asked questions about their employment may fail to consider non-employer sponsored sources of coverage when later asked about their insurance status.

MHIS, MHRS, MA BRFSS, and NHIS place health insurance questions at the beginning of the survey. In contrast, because ACS's primary purpose is to collect information on community, demographic and economic indicators, not health insurance coverage, the single health insurance item is placed in the middle of the survey.

Post-Survey Data Processing

How is survey data weighted?

One of the goals of the surveys discussed is to provide a picture of insurance coverage in Massachusetts as a whole, not just for those surveyed. In order to extrapolate survey results to the general Massachusetts population, some post-survey data processing must be done. One of these processing procedures is called weighting. Weighting is designed to account for differential probabilities of sample selection and to adjust for differences in the characteristics of respondents and non-respondents. A second part of weighting is to adjust the sample distribution to the sampling frame or a known population distribution.

Surveys may weight data using different population characteristics. All surveys profiled in this brief adjust for age, gender, and race/ethnicity. MHIS additionally adjusts for geographical region, education level, population density, citizenship status, and phone-usage. MHRS additionally adjusts for education level, phone status, and geographical region. In addition to all the characteristics already mentioned, MA BRFSS adjusts for phone-usage, marital status, education level, and owner/renter status. ACS and NHIS do not adjust for any additional characteristics.[39]

How is missing health insurance data treated?

Depending on the nature and volume of missing data from each survey, missing data usually needs to be replaced through a process called imputation in order to avoid biased estimates. There are two popular methods of imputation—hot deck imputation and modelled imputation—both of which involve substituting missing data with plausible estimates based on different criteria. Hot deck imputation produces estimates by pulling data for missing values from respondents with similar sociodemographic and other relevant data, whereas modelled imputation uses the distribution of observed data to predict estimates for those missing data. The handling of missing data is a delicate process that is not uniform across all the surveys profiled in this brief.

Both MHIS and ACS use imputation methods to deal with missing data on health insurance. Health insurance items are imputed in the MHIS based on a multiple imputation model utilizing age, sex, race, citizenship status, language spoken, health status, health limitations, family education, family employment status, and federal poverty level.[40] ACS imputes the health insurance variable using geographical information. In contrast, MHRS, MA BRFSS, and NHIS do little to no imputation on health insurance coverage information.[41,42]

Changes in Survey Methodology Over Time

Besides differences in methodology used across surveys, some surveys have changed their methodology over time. The following section examines some of these changes in the selected surveys.

How Has the Massachusetts Health Insurance Survey (MHIS) Changed Over Time?

Changes to MHIS over time, as shown in Table 3, include changes in sampling approach, strategy for asking health insurance questions, and post-survey processing. Therefore, estimates from 2014 and after should not be compared to earlier years of the survey. It is not possible to determine whether observed changes are due to survey design change or due to underlying changes in health insurance coverage.

TABLE 3. MHIS - CHANGES IN METHODOLOGY OVER TIME

Survey Element	MHIS (2006-2007)	MHIS (2008-2011)	MHIS (2014-present)*
Sample frame	Landline RDD sample	Landline RDD and address-based sample	Landline and cell phone RDD sample
Survey mode	Telephone-based	Telephone, with web and mail options	Telephone-based
Response rate	~60%	~40%	~30%
Survey period	Feb-July	May-July	May-July
Time period for health insurance questions	Point in time	Point in time Past 12 months	Point in time Past 12 months
Strategy for asking health insurance questions	Funneling approach with screener questions on insurance coverage	Multi-item approach	Multi-item approach
Imputation for missing health insurance information	No	No	Yes

*MHIS was fielded in Spring 2017 and results will be available at the end 2017.

How Have Other Surveys Changed Over Time?

In addition to the MHIS, MHRS and MA BRFSS have made changes to their survey methodology over time. In the initial years of the MHRS (2006–2009), "working-age/non-elderly adult" was defined as ages 18 to 64. In 2010, this was modified to 19-64 years to align with CHIA's MHIS survey. MHRS also changed their sampling frame to include both cell phones and landlines in 2010.

MA BRFSS made changes to its survey methodology in 2011.[43] In prior years, the MA BRFSS interviewed participants using landline telephones only. The re-designed MA BRFSS now interviews participants over both landline and cellular telephones. By adding cellular telephones, the MA BRFSS captures cellphone-only households, who are more likely to be low-income and uninsured. MA BRFSS also changed their weighting strategy from post-stratification weighting to iterative proportional fitting. These changes prevent the comparison of 2011-2015 MA BRFSS data to MA BRFSS data in prior years.

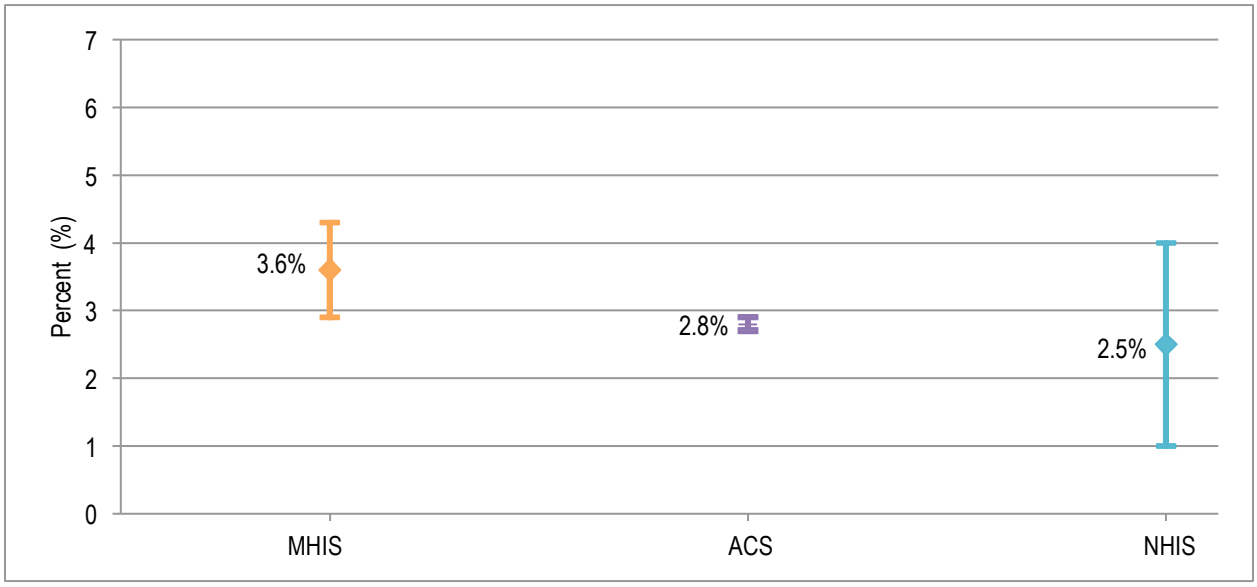
Uninsurance Estimates from Selected Surveys in Massachusetts

As described in earlier sections, MHIS, MHRS, MA BRFSS, ACS, and NHIS have differences in regards to survey objectives, target population and sample frame, sample size and response rates, and post-survey data processing. In this section, uninsurance estimates from 2015 (the most recent year where data is available for these selected surveys) are presented. Since survey estimates are based upon a sample of the population, some differences can be due to uncertainty in the data, and hence a 95% confidence interval[vi] is displayed with each point estimate. Estimates reported in this section are for point-in-time insurance coverage.

What Are the Currently Available Uninsurance Estimates in Massachusetts?

Three surveys provided estimates of the uninsurance rate for the total population in Massachusetts in 2015 (Figure 1). The estimate of the uninsurance rate ranged from 2.5% to 3.6%. The estimates from ACS are estimated with the greatest precision, reflecting the very large sample size in that survey. However, the confidence intervals for the three estimates overlapped, highlighting the similarity of the estimates across the three surveys despite differences in survey methodology.

Figure 1: 2015 Estimates of Uninsurance Rates for All Ages in Massachusetts



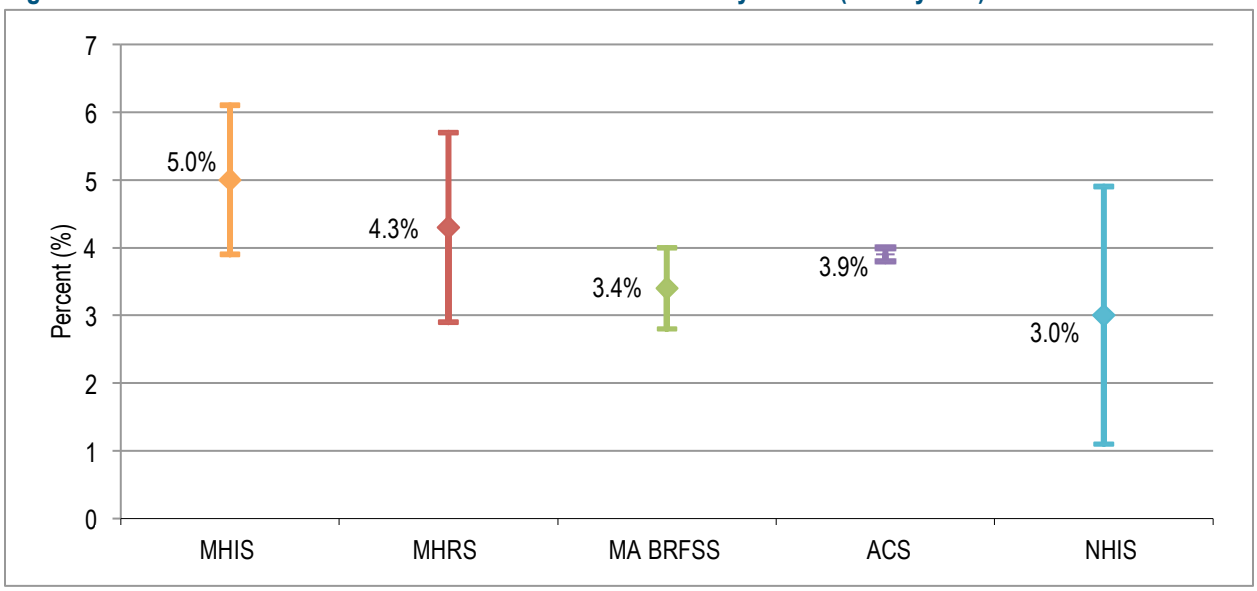
Note: Bar denotes 95% confidence intervals.

Source: ACS estimates for civilian noninstitutionalized population from U.S. Census Bureau, 2016, "Health Insurance Coverage in the United States: 2015"; NHIS estimates from Martinez, Cohen and Zammitti, 2016, "Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey, 2015"; MHIS estimate based on Center for Health Information and Analysis, 2015, "Findings from the 2015 Massachusetts Health Insurance Survey."

[vi] The confidence interval indicates the precision of a calculation; the wider the interval, the less precision in the estimate.

Uninsurance estimates for non-elderly adults were available from all five surveys in 2015. The uninsurance estimates ranged from 3.0% to 5.0%. Despite the differences in survey methodologies, confidence intervals overlapped, again showing similarity among these survey estimates.

Figure 2: 2015 Estimates of the Uninsurance Rate for Non-Elderly Adults (18-64 years) in Massachusetts

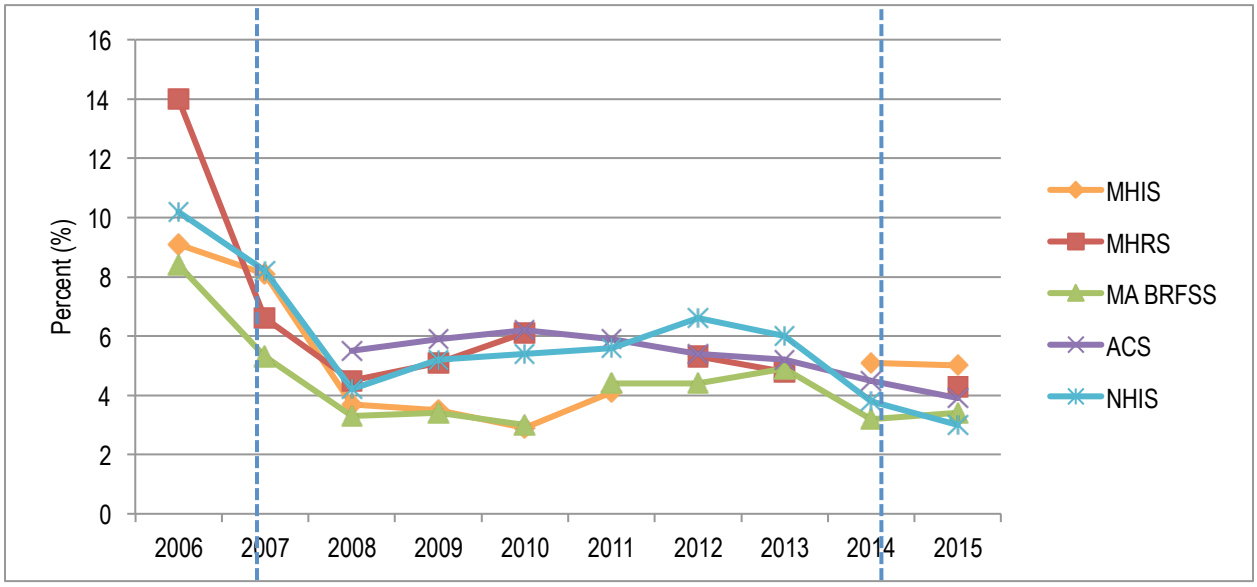


Note: Bar denotes 95% confidence intervals. Uninsurance estimates for MHIS and MHRS are for the non-elderly adult population ages 19-64 years.
Source: MHIS estimate based on Center for Health Information and Analysis, 2015, "Findings from the 2015 Massachusetts Health Insurance Survey"; MHRS estimates based on Blue Cross Blue Shield Foundation, 2016, "Health Insurance Coverage and Health Care Access and Affordability in Massachusetts: 2015 Update"; MA Dept. of Public Health, 2016, "A Profile of Health among Massachusetts Adults, 2015: Results from the BRFSS"; ACS estimates for civilian noninstitutionalized population from U.S. Census Bureau, 2016, "Health Insurance Coverage in the United States: 2015"; NHIS estimates from Martinez, Cohen and Zammitti, 2016, "Health Insurance Coverage: Early Release of Estimates from the National Health Interview Survey, 2015."

What Is The Trend in Uninsurance Rates Over Time?

Despite methodology differences across surveys and changes within surveys over time, all five surveys display a similar downward trend in the uninsurance rates for Massachusetts over time (Figure 3). Among the non-elderly adult population, uninsurance estimates were the highest in 2006, ranging from 8.4% (MA BRFSS) to 14.0% (MHRS) (Figure 3). Following the implementation of Massachusetts state health care reform legislation in July 2007, the uninsurance estimates dropped significantly from 2006 to 2008 across these surveys. From 2008 to 2015, uninsurance estimates plateaued and remained steady between 3.0% and 5.0%.

Figure 3: Trend in Uninsurance Rates for Non-Elderly Adults (18-64) Across Selected Surveys, 2006-2015



Note: Dashed blue lines highlight periods of health care reform. The 2007 line represents the implementation of Massachusetts health care reform and the 2014 line represents the implementation of national health care reform (ACA). ACS provides annual national and subnational estimates of health insurance coverage back to 2008. Uninsurance estimates for MHIS and MHRS are for the non-elderly adult population ages 19-64 years.

Discussion

The surveys discussed are essential data sources for monitoring health insurance coverage in the population. This brief shows that Massachusetts uninsurance estimates are similar across a variety of state and federal surveys despite a number of differences, including sampling frame, sample size, survey mode, survey objectives and questions, and post-survey data processing. The surveys also tell a consistent story about the overall trends in Massachusetts health insurance coverage over time. This similar and consistent picture in uninsurance estimates across surveys and over time provides a high degree of confidence in the low uninsurance rate in Massachusetts. No single survey is superior in providing the "best" estimates on rates of uninsurance at particular points in time, and so the choice of which survey estimate to use will depend on the specific policy and/or research questions being examined.

Given the consistently low overall rate of uninsurance in Massachusetts, gaps in coverage, health care utilization, and affordability are becoming more pertinent focus areas for stakeholders. Certain surveys are designed to provide

more information in these areas, including MHIS, MHRS, and NHIS. MHIS's uninsurance rates can be examined in the context of coverage transitions, which may not be possible with other survey data. In particular, MHIS has the ability to capture respondents' churn—when individuals move between insurance coverage types or between periods of coverage and uninsurance.[44,45] MHIS has specific questions about coverage transitions and periods of uninsurance, which capture a coverage experience that is not typically examined in traditional (point-in-time and/or past 12 months) uninsurance studies.

Additionally, MHIS is fielded and published in the same calendar year, thus providing timely data on measures pertaining to provider utilization as well as measures of affordability, including out-of-pocket expenses, medical debt, and unmet health care needs. These measures can be examined in conjunction with coverage rates for a more comprehensive picture of health insurance in Massachusetts.

APPENDIX A: COMPARISON OF SELECTED SURVEYS' METHODOLOGY (2015)

	MHIS	MHRS	MA BRFSS	ACS	NHIS
Sponsor	Massachusetts Center for Health Information and Analysis	Blue Cross Blue Shield of MA Foundation	Massachusetts Department of Public Health, Centers for Disease Control and Prevention	U.S. Department of Commerce, U.S. Census Bureau	National Center for Health Statistics, Centers for Disease Control and Prevention
Primary focus of survey	Health insurance coverage, access, utilization, and affordability	Health insurance coverage, access, and affordability	Health status, risk factors, and health behaviors	Social, economic, demographic, and housing information	Population health, health status, and health behaviors
Target population	Children and adults	Non-elderly adults (19-64 years old)	Adults (18+ years old)	Children and adults	Children and adults
Sample frame	RDD landline and cell phone sample	RDD landline and cell phone sample	RDD landline and cell phone sample	Address-based sample	Area-based multistage sample
Survey mode	Telephone	Telephone	Telephone	Mailed survey, in-person interview, telephone and web-based	In-person interview
Response rate*	24.6%	20.6%	39.8%	95.6%	Not available**
MA Sample size	5,002 respondents	2,014 respondents	9,294 respondents	47,197 respondents	Not available**
Survey period	May-July	Sept-Nov	Monthly	Monthly	Monthly
Survey frequency	Biennial beginning in 2015	Periodic	Annual	Annual	Annual
Time period for health insurance questions	Current and Prior 12 months	Current and Prior 12 months	Current	Current	Current and Prior 12 months
Strategy for asking health insurance questions	Multi-item approach	Multi-item approach	Funneling approach	Single-item approach	Multi-item approach
Health insurance verification question	Yes	Yes	Yes	No	Yes
Use Massachusetts-specific program names in health insurance questions	Yes	Yes	Yes	No	Yes
Imputation for missing health insurance information	Yes	No	No	Yes	No

APPENDIX A: COMPARISON OF SELECTED SURVEYS' METHODOLOGY (2015)

	MHIS	MHRS	MA BRFSS	ACS	NHIS
Supports uninsurance estimates for geographic subgroups in the state	Yes (Limited)	Yes (Limited)	Yes (Limited)	Yes	No
Supports comparisons of uninsurance estimates to US average and other states	No	No	Yes	Yes	Yes

*MHIS and MHRS response rates were calculated based on AAPOR Response Rate #3, which is generally defined as the number of households in which an interview was completed divided by the estimated number of eligible households in the sample. MA BRFSS response rates were calculated based on AAPOR Response Rate #4, which is an outcome rate with the number of complete and partial interviews in the numerator and an estimate of the number of eligible units in the sample in the denominator.[46] ACS response rate is the ratio of the estimate of units interviewed after data collection is complete to the estimate of all units that should have been interviewed.[47] Reported ACS response rate is based on housing units; group quarter response rate is 92.6%.
**2015 NHIS national sample size was 41,493 respondents and response rate was 70.1%. Data is not publicly available at the state level.
Note: The Medical Expenditure Panel Survey (MEPS), which began in 1996, is a set of large-scale surveys of families and individuals, their medical providers (doctors, hospitals, pharmacies, etc.), and employers across the United States. While this survey collects information on health insurance and health care expenditures, it lacks the sample size for state-level estimates. The MEPS is not included in this research brief.

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