

THE GEOGRAPHY OF UNINSURANCE IN MASSACHUSETTS, 2009–2013

APRIL 2015

Although Massachusetts has achieved near-universal health insurance coverage since the implementation of its 2006 health reform initiative,¹ that high level of coverage is not experienced in all areas of the state. This brief takes advantage of the large sample size of the American Community Survey (ACS) to document the distribution of uninsurance across Massachusetts. We focus on the 2009–2013 ACS, which provides data from a sample of 140,001 people across a range of geographic units for Massachusetts—from congressional districts to counties to neighborhoods.

THE AMERICAN COMMUNITY SURVEY

The ACS is an annual survey of roughly 2 million households conducted by the U.S. Census Bureau to provide information on the demographic, socioeconomic, and housing circumstances of U.S. residents.² The survey sample for Massachusetts ranges from 37,000 to 44,000 households each year over the 2009–2013 period. A question on health insurance coverage was added to the survey in 2008. The ACS uses an address-based sample frame and collects data using mail, phone, and in-person interviews continuously over the year. Response to the ACS is required by law, ensuring a very high weighted response rate of roughly 98 percent each year. While data files are released each year with individual-level data, geographic indicators on the annual data files are restricted to protect the confidentiality of survey respondents.³ For a single year of the ACS, the smallest geographic area for which data

are released is the Public Use Microdata Areas (PUMA). PUMAs are created by the Census Bureau to partition each state into non-overlapping areas containing about 100,000 residents each. They are based on counties, subsets of counties (in urban areas), and combinations of counties (in more rural areas). There are 52 PUMAs in Massachusetts. In order to have data for each county in Massachusetts, as well as for smaller geographic areas in the state, it is necessary to use ACS data files that combine multiple years of data.

For this project we rely on the 2009–2013 five-year file, which provides data across a range of geographic units for Massachusetts, ranging from national and state legislative districts to census tracts. The geographic units include both legal units (e.g., congressional districts, state legislative districts, counties) and statistical units, which are defined by the Census Bureau for tabulating and reporting data (e.g., census tracts). We report on the following geographic units:

1. Congressional Districts
2. State Legislative Districts—Senate
3. State Legislative Districts—House
4. Public Use Microdata Areas (PUMAs)
5. Counties
6. County Subdivisions
7. Places
8. School Districts
9. ZIP Code Tabulation Areas (ZCTA)
10. Census Tracts

1 Long SK and TH Dimmock. 2014. *Health Insurance Coverage and Health Care Access and Affordability: Affordability Still a Challenge*. Boston, MA: Blue Cross Blue Shield of Massachusetts Foundation.

2 For additional information on the ACS, see <http://www.census.gov/acs/www/>.

3 To protect the confidentiality of the individuals in the ACS, the Census Bureau undertakes a number of strategies, including data swapping (moving similar cases between adjacent geographic areas), top- or bottom-coding of variables, collapsing some of the details for categorical variables, and limiting the level of geographic detail available. Thus the ACS does not provide data for units that are smaller than Public Use Microdata Areas (PUMAs) for files with a single year of data.

Chart 1 summarizes the definitions of the different geographic units used in this report.

CHART 1: SUMMARY OF GEOGRAPHIC UNITS

UNIT	DEFINITION
CONGRESSIONAL DISTRICTS	Congressional Districts are the 435 areas from which people are elected to the U.S. House of Representatives. Congressional districts are non-overlapping areas that cover the entire state. For the 111th Congress (January 2009 – January 2011), Massachusetts had 10 congressional districts. For the 113th Congress (January 2013 – January 2015), Massachusetts has nine congressional districts as a result of reapportionment based on the 2010 Census. The tabulations here use the congressional districts for the 113th Congress.
STATE LEGISLATIVE DISTRICTS	State Legislative Districts (SLDs) are the areas from which members are elected to state legislatures. The SLDs embody the upper (senate) and lower (house) chambers of the state legislature. SLDs are non-overlapping and cover the entire state. There are 40 state senate districts and 160 state house districts in Massachusetts.*
PUBLIC USE MICRODATA AREAS (PUMAS)	Public Use Microdata Areas (PUMAs) are created by the Census Bureau to partition each state into non-overlapping areas containing about 100,000 residents each. PUMAs are based on counties, subsets of counties (in urban areas), and combinations of counties (in more rural areas). There are 52 PUMAs in Massachusetts.
COUNTIES	Counties or county equivalents are the primary legal divisions of most states. There are 14 counties in Massachusetts. Berkshire, Essex, Franklin, Hampden, Hampshire, Middlesex, and Worcester counties are no longer legal governmental units; however, the Census Bureau continues to present data for these historical entities in order to provide comparable geographic units at the county level of the geographic hierarchy, and it represents them as nonfunctioning legal entities in data products.
COUNTY SUBDIVISIONS	County Subdivisions are the primary divisions of counties. Minor civil divisions (MCDs) are the primary governmental or administrative divisions of a county in many states. In some states, all or some incorporated places are not part of any MCD; these places are termed independent places. County subdivisions are non-overlapping and cover the entire state. There are 357 MCDs in Massachusetts. There are 298 towns with functioning, but not necessarily active, governments. The 53 incorporated places (see below) are independent of MCDs and serve as county subdivisions. In addition there are six MCDs that consist entirely of water area within the territorial limits of Massachusetts.
PLACES	Places include incorporated places and census designated places (CDPs). An incorporated place is established to provide governmental functions for a concentration of people, as opposed to a minor civil division, which generally is created to provide services or administer an area without regard, necessarily, to population. An incorporated place usually is a city, town, village, or borough but can have other legal descriptions. For Census Bureau data tabulation and presentation purposes, incorporated places exclude towns in Massachusetts. CDPs are the statistical counterparts of incorporated places and are delineated to provide data for settled concentrations of population that are identifiable by name but are not legally incorporated. There are no population size requirements for CDPs. Places are non-overlapping but do not necessarily cover the entire state. Massachusetts has 244 places: 53 incorporated places and 191 CDPs. The incorporated places are all cities.
SCHOOL DISTRICTS	School Districts are geographic entities that provide public educational services for the area's residents. The Census Bureau obtains the boundaries, names, local education agency codes, and school district levels for school districts from state and local school officials. Massachusetts has 71 elementary school districts, 35 secondary school districts, and 210 unified school districts.
ZIP CODE TABULATION AREAS (ZCTAs)	ZIP Code Tabulation Areas (ZCTAs) are approximate area representations of U.S. Postal Service (USPS) five-digit ZIP code service areas that the Census Bureau creates using whole blocks to present statistical data from censuses and surveys. The Census Bureau defines ZCTAs by allocating each block that contains addresses to a single ZCTA, usually to the ZCTA that reflects the ZIP code most frequently occurring for the addresses within that tabulation block. ZCTAs are non-overlapping and cover the entire state. There are 538 ZCTAs in Massachusetts.
CENSUS TRACTS	Census Tracts are small, relatively permanent statistical subdivisions of a county. Census tracts generally have a population size between 1,200 and 8,000 people, with an optimum size of 4,000 people. Census tracts are non-overlapping areas that cover the entire state. Massachusetts has 1,478 census tracts.

*In addition, there is one state senate district and one state house district not defined, each of which encompasses water area.

Sources: http://www.census.gov/geo/reference/guidestloc/st25_ma.html; <http://www.census.gov/geo/reference/terms.html>; <http://www.census.gov/geo/reference/puma.html>.

For each geographic unit, the ACS provides an estimate of the average number of people and average number of uninsured people in the area for the 2009–2013 period by age and gender. We use those data, obtained from American FactFinder, to construct an estimate of the average uninsurance rate in each area. We provide detailed tables in the appendices for the uninsurance rate overall, by gender, and by age group (children 0 to 17, nonelderly adults 18 to 64, and elderly adults 65 and older) for each of these geographic units.

HIGHLIGHTS

The **overall** *uninsurance rate* was highest in Dukes County (7.6 percent) and lowest in Norfolk County (2.5 percent) in 2009–2013, while *the number of uninsured* was highest in Middlesex County (about 55,500) and lowest in Nantucket County (739) (Table 1).

The **counties** with the highest *uninsurance rates* varied for children and nonelderly adults. Barnstable County had the highest uninsurance rate for children (3.4 percent), while Dukes County had the highest uninsurance rate for adults (11.4 percent) (Table 2). The county with the highest *number of uninsured* was Middlesex County for both children (3,943) and nonelderly adults (50,832) (Table 3).

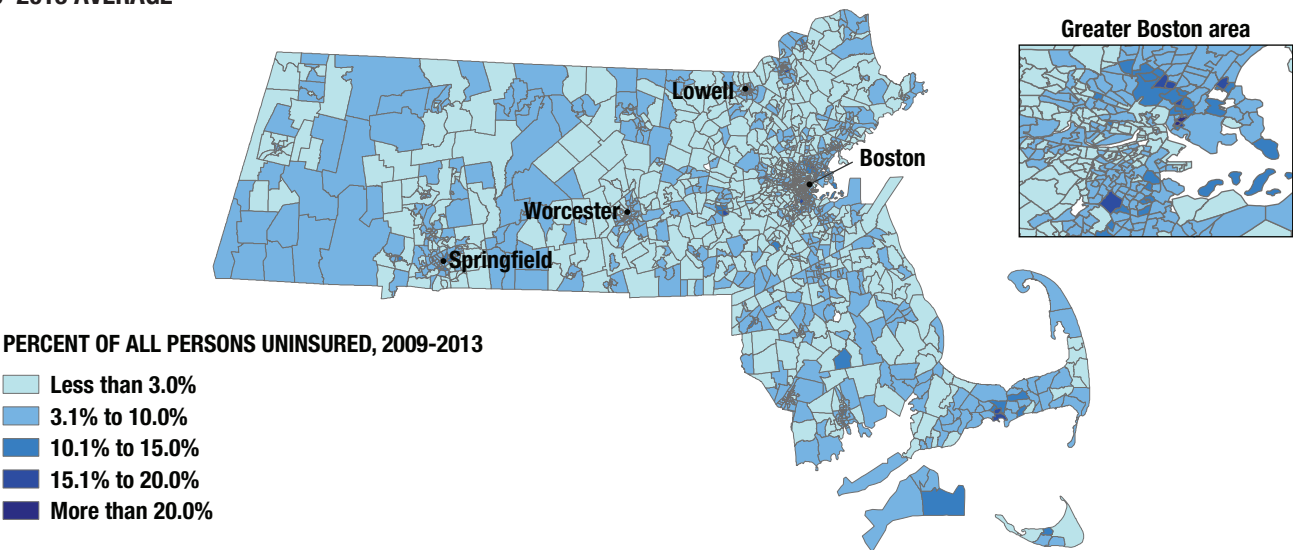
Looking within the counties at **county subdivisions**, the *uninsurance rate* varied widely. For example, in Berkshire

County, the uninsurance rate ranged from 0.9 percent in Dalton town to 12.3 percent in New Ashford town (Appendix Table 7). The 25 county subdivisions with the highest uninsurance rates were in 10 counties (Barnstable, Berkshire, Bristol, Dukes, Essex, Franklin, Middlesex, Nantucket, Suffolk, Worcester), while the 25 county subdivisions with the highest *number of uninsured* were in nine counties (Barnstable, Bristol, Essex, Hampden, Middlesex, Norfolk, Plymouth, Suffolk, Worcester) (Table 4).

Looking further within counties at neighborhoods, as represented by **census tracts**, the *uninsurance rate* for residents of all ages was as high as 20 percent or more in some of the census tracts in Suffolk County and Bristol County and between 10 and 20 percent in some of the census tracts in Middlesex, Suffolk, Barnstable, Hampden, Essex, Worcester, Plymouth, Bristol, Dukes and Norfolk Counties (Appendix J1). For nonelderly adults, the *uninsurance rate* was above 20 percent in 25 neighborhoods across the state and above 30 percent in two neighborhoods (one census tract in Suffolk County and one in Bristol County) (Appendix J5).

There was variation in the *uninsurance rate* across the neighborhoods in Massachusetts over the 2009–2013 period, as shown in Figure 1. Darker blue areas indicate areas with higher levels of uninsurance, with the darkest blue indicating uninsurance rates above 20 percent.

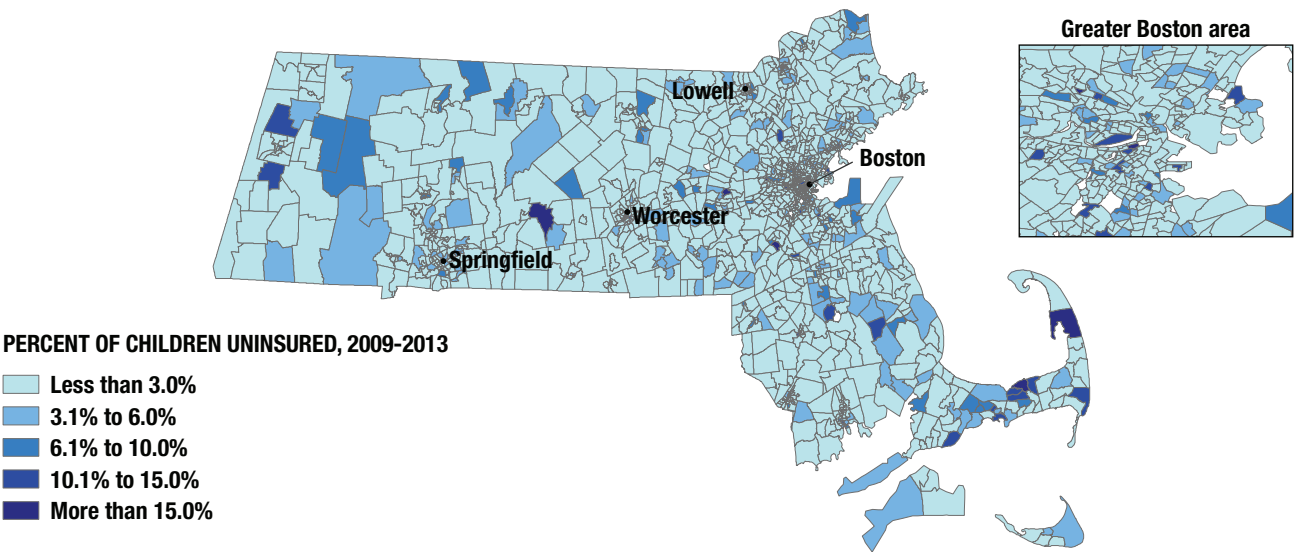
FIGURE 1: UNINSURANCE IN ZCTAs (ZIP CODE TABULATION AREAS) FOR PERSONS OF ALL AGES IN MASSACHUSETTS, 2009–2013 AVERAGE



Note: Neighborhoods are defined by ZIP Code Tabulation Areas (ZCTAs). See page 2 for definition of ZCTA.
Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

The uninsurance rate for children was generally quite low across neighborhoods in Massachusetts over the 2009–2013 period (Figure 2). However, a few neighborhoods had an uninsurance rate for children above 15 percent, as indicated by areas in the darkest blue.

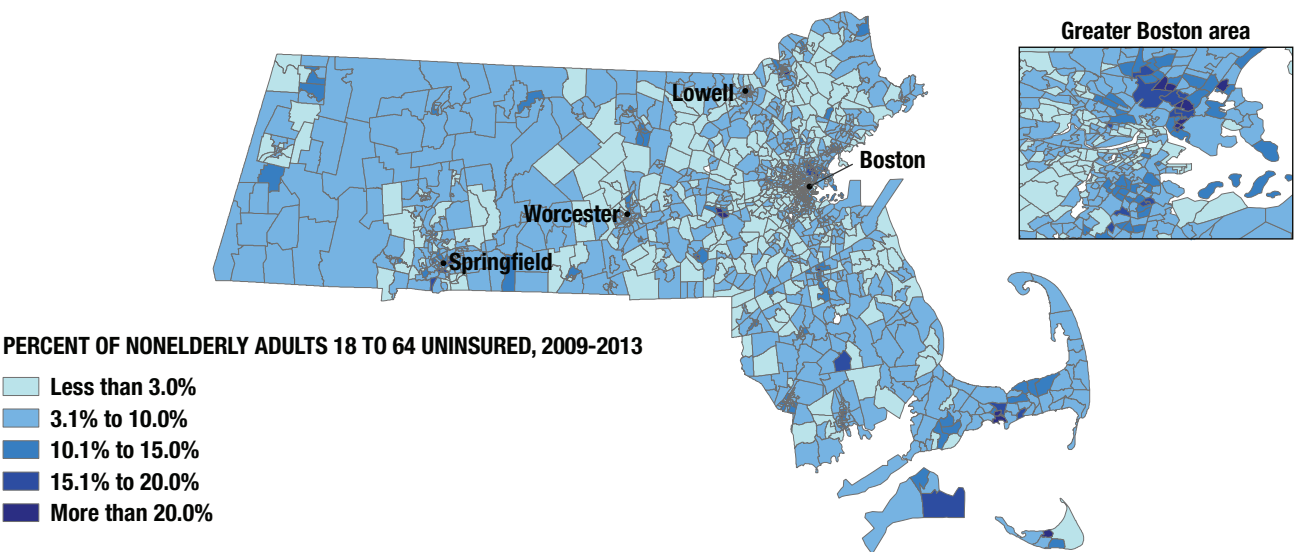
FIGURE 2: UNINSURANCE IN ZCTAs (ZIP CODE TABULATION AREAS) FOR CHILDREN 0 TO 17 IN MASSACHUSETTS, 2009–2013 AVERAGE



Note: Neighborhoods are defined by ZIP Code Tabulation Areas (ZCTAs). See page 2 for definition of ZCTA.
Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

Uninsurance for nonelderly adults varies widely across the state, from less than 3 percent in the areas in the lightest blue to more than 20 percent in the areas in the darkest blue (Figure 3).

FIGURE 3: UNINSURANCE IN ZCTAs (ZIP CODE TABULATION AREAS) FOR NONELDERLY ADULTS 18 TO 64 IN MASSACHUSETTS, 2009–2013 AVERAGE



Note: Neighborhoods are defined by ZIP Code Tabulation Areas (ZCTAs). See page 2 for definition of ZCTA.
Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

TABLE 1: RANKING OF COUNTIES IN MASSACHUSETTS BY UNINSURANCE RATE AND NUMBER OF UNINSURED FOR PERSONS OF ALL AGES, 2009–2013 AVERAGE

RANK BY UNINSURANCE RATE	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)	RANK BY NUMBER UNINSURED	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)
Dukes County	16,628	1,265	7.6	Middlesex County	1,506,992	55,502	3.7
Nantucket County	10,184	739	7.3	Suffolk County	728,025	41,381	5.7
Suffolk County	728,025	41,381	5.7	Essex County	743,138	31,910	4.3
Barnstable County	212,574	10,796	5.1	Worcester County	790,666	29,302	3.7
Hampden County	459,427	20,714	4.5	Bristol County	542,925	23,651	4.4
Bristol County	542,925	23,651	4.4	Hampden County	459,427	20,714	4.5
Essex County	743,138	31,910	4.3	Plymouth County	489,145	18,800	3.8
Franklin County	70,669	2,736	3.9	Norfolk County	668,390	16,834	2.5
Plymouth County	489,145	18,800	3.8	Barnstable County	212,574	10,796	5.1
Worcester County	790,666	29,302	3.7	Hampshire County	157,756	5,020	3.2
Middlesex County	1,506,992	55,502	3.7	Berkshire County	128,332	4,209	3.3
Berkshire County	128,332	4,209	3.3	Franklin County	70,669	2,736	3.9
Hampshire County	157,756	5,020	3.2	Dukes County	16,628	1,265	7.6
Norfolk County	668,390	16,834	2.5	Nantucket County	10,184	739	7.3

Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

TABLE 2: RANKING OF COUNTIES IN MASSACHUSETTS BY UNINSURANCE RATE FOR CHILDREN AND NONELDERLY ADULTS, 2009–2013 AVERAGE

RANK BY UNINSURANCE RATE	CHILDREN 0 TO 17			RANK BY UNINSURANCE RATE	NONELDERLY ADULTS 18 TO 64		
	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)		TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)
Barnstable County	36,130	1,242	3.4	Dukes County	10,624	1,215	11.4
Franklin County	13,737	312	2.3	Nantucket County	6,801	720	10.6
Plymouth County	117,329	2,243	1.9	Barnstable County	122,412	9,504	7.8
Berkshire County	24,506	460	1.9	Suffolk County	525,488	38,694	7.4
Suffolk County	127,967	2,177	1.7	Hampden County	287,009	19,023	6.6
Hampshire County	26,017	438	1.7	Bristol County	346,571	21,830	6.3
Essex County	170,551	2,765	1.6	Essex County	467,809	28,837	6.2
Bristol County	120,170	1,702	1.4	Plymouth County	302,566	16,422	5.4
Hampden County	108,090	1,473	1.4	Franklin County	45,890	2,424	5.3
Worcester County	183,540	2,341	1.3	Worcester County	506,950	26,682	5.3
Middlesex County	320,284	3,943	1.2	Middlesex County	990,858	50,832	5.1
Norfolk County	151,066	1,856	1.2	Berkshire County	79,951	3,709	4.6
Nantucket County	2,143	19	0.9	Hampshire County	111,554	4,502	4.0
Dukes County	3,166	27	0.9	Norfolk County	420,752	14,562	3.5

Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

TABLE 3: RANKING OF COUNTIES IN MASSACHUSETTS BY NUMBER OF UNINSURED FOR CHILDREN AND NONELDERLY ADULTS, 2009–2013 AVERAGE

RANK BY NUMBER UNINSURED	CHILDREN 0 TO 17			RANK BY NUMBER UNINSURED	NONELDERLY ADULTS 18 TO 64		
	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)		TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)
Middlesex County	320,284	3,943	1.2	Middlesex County	990,858	50,832	5.1
Essex County	170,551	2,765	1.6	Suffolk County	525,488	38,694	7.4
Worcester County	183,540	2,341	1.3	Essex County	467,809	28,837	6.2
Plymouth County	117,329	2,243	1.9	Worcester County	506,950	26,682	5.3
Suffolk County	127,967	2,177	1.7	Bristol County	346,571	21,830	6.3
Norfolk County	151,066	1,856	1.2	Hampden County	287,009	19,023	6.6
Bristol County	120,170	1,702	1.4	Plymouth County	302,566	16,422	5.4
Hampden County	108,090	1,473	1.4	Norfolk County	420,752	14,562	3.5
Barnstable County	36,130	1,242	3.4	Barnstable County	122,412	9,504	7.8
Berkshire County	24,506	460	1.9	Hampshire County	111,554	4,502	4.0
Hampshire County	26,017	438	1.7	Berkshire County	79,951	3,709	4.6
Franklin County	13,737	312	2.3	Franklin County	45,890	2,424	5.3
Dukes County	3,166	27	0.9	Dukes County	10,624	1,215	11.4
Nantucket County	2,143	19	0.9	Nantucket County	6,801	720	10.6

Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.

TABLE 4: TOP 25 COUNTY SUBDIVISIONS IN MASSACHUSETTS BY UNINSURANCE RATE AND NUMBER OF UNINSURED FOR PERSONS OF ALL AGES, 2009–2013 AVERAGE

RANK BY UNINSURANCE RATE	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)	RANK BY NUMBER UNINSURED	TOTAL POPULATION	NUMBER UNINSURED	UNINSURANCE RATE (%)
New Ashford town, Berkshire County	220	27	12.3	Boston city, Suffolk County	622,258	32,684	5.3
Edgartown town, Dukes County	4,102	486	11.8	Springfield city, Hampden County	152,437	9,647	6.3
Everett city, Middlesex County	41,909	4,831	11.5	Worcester city, Worcester County	179,677	8,824	4.9
Chelsea city, Suffolk County	35,783	3,870	10.8	Lawrence city, Essex County	76,161	7,679	10.1
Lawrence city, Essex County	76,161	7,679	10.1	Lowell city, Middlesex County	106,324	7,263	6.8
Washington town, Berkshire County	477	44	9.2	New Bedford city, Bristol County	93,476	6,591	7.1
Colrain town, Franklin County	1,777	161	9.1	Lynn city, Essex County	90,423	6,144	6.8
West Tisbury town, Dukes County	2,628	236	9.0	Brockton city, Plymouth County	92,767	6,016	6.5
Lenox town, Berkshire County	4,809	421	8.8	Framingham town, Middlesex County	67,813	5,042	7.4
Peru town, Berkshire County	872	75	8.6	Fall River city, Bristol County	87,608	4,939	5.6
West Brookfield town, Worcester County	3,588	305	8.5	Everett city, Middlesex County	41,909	4,831	11.5
Tisbury town, Dukes County	3,980	324	8.1	Malden city, Middlesex County	59,631	4,480	7.5
Barnstable Town city, Barnstable County	44,673	3,571	8.0	Revere city, Suffolk County	52,269	4,160	8.0
Revere city, Suffolk County	52,269	4,160	8.0	Quincy city, Norfolk County	92,114	3,995	4.3
Salisbury town, Essex County	8,377	630	7.5	Somerville city, Middlesex County	76,758	3,927	5.1
Malden city, Middlesex County	59,631	4,480	7.5	Chelsea city, Suffolk County	35,783	3,870	10.8
Framingham town, Middlesex County	67,813	5,042	7.4	Cambridge city, Middlesex County	105,002	3,577	3.4
Nantucket town, Nantucket County	10,184	739	7.3	Barnstable Town city, Barnstable County	44,673	3,571	8.0
New Bedford city, Bristol County	93,476	6,591	7.1	Waltham city, Middlesex County	60,979	3,262	5.3
Lowell city, Middlesex County	106,324	7,263	6.8	Haverhill city, Essex County	60,650	2,777	4.6
Royalston town, Worcester County	1,161	79	6.8	Leominster city, Worcester County	40,516	2,648	6.5
Lynn city, Essex County	90,423	6,144	6.8	Taunton city, Bristol County	55,359	2,430	4.4
Yarmouth town, Barnstable County	23,552	1,585	6.7	Medford city, Middlesex County	56,160	2,122	3.8
Milford town, Worcester County	27,924	1,828	6.5	Attleboro city, Bristol County	43,271	2,064	4.8
Leominster city, Worcester County	40,516	2,648	6.5	Peabody city, Essex County	51,005	1,985	3.9

Source: 2013 ACS 5-year Estimates, Table 27001, Health insurance coverage status by sex by age.