

# ANNUAL REPORT

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## STUDY OF THE IMPACT OF THE ACA IMPLEMENTATION IN KENTUCKY

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*Revised March 21, 2016*



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Revised March 21, 2016

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# INTRODUCTION

## Overview

This report was produced by the State Health Access Data Assistance Center (SHADAC) at the University of Minnesota as part of a mixed-methods study, *Study of the Impact of the Affordable Care Act (ACA) Implementation in Kentucky*, funded by the Foundation for a Healthy Kentucky (Foundation). The study evaluates Kentucky's progress in five domains: coverage, access, cost, quality, and health outcomes. As part of this project, SHADAC uses semi-annual and annual reports to document the impact of the ACA in Kentucky using a set of indicators agreed upon by the Foundation and its ACA Impact Study Oversight Committee. These reports track change in the indicators throughout the duration of this 34-month study (March 2015 through January 2018), and include comparisons of Kentucky metrics with the U.S. and other states. This report includes data obtained from analysis of federal and state data resources. In future reports, these data sources will be augmented with primary quantitative and qualitative data collected directly by the study team. Together, all the data will be used to conduct a comprehensive analysis of Kentucky's implementation of health reform over time.

## Purpose and Layout of Current Report

The purpose of this first annual report is twofold: 1) to briefly summarize progress on the study during the first year of implementation, and 2) to provide updated data on key health care indicators in Kentucky.

The majority of this report is devoted to the data update (Section II of the report), which follows the baseline data report completed in August 2015. That report used calendar year 2012 data as the baseline for most indicators because it pre-dated the first ACA enrollment period, and because 2012 data were available for most indicators. This report provides updates with the most recent data available—in some cases 2013, and in other cases 2014—as a comparison to the baseline. We examine change over time in Kentucky for all available metrics. For selected indicators, we also compare Kentucky to national figures and nearby states for comparison (Arkansas, Illinois, Indiana, Missouri, Ohio, Tennessee, Virginia, and West Virginia).<sup>1</sup>

The data update (Section II) is organized by domain (coverage, access, cost, quality, and health outcomes), and each domain's chapter begins with a discussion of the domain's importance for ACA tracking, the major data sources used for measurement, and a summary of key findings. We then present the most recent available data for each of the indicators included in that domain. We conclude with a discussion of next steps. Descriptions of study methodology, technical information on data sources, and additional charts are included as appendices.

## INTRODUCTION

*Brief Summary of Year 1 Progress on the Study*

The study began in March 2015. During the first year, SHADAC's main study accomplishments and deliverables included:

- Study Methods and Plan
- Data Scan and Gaps Analysis
- Quarterly Snapshots:
  - [January-March 2015](#)
  - [April-June 2015](#)
  - [July-September 2015](#)
- Baseline data file
- [Semi-Annual Report](#)
- Special Report: ACA Improves Health Insurance Coverage for Kentucky Children ([Issue Brief](#))
- Special Report: Uninsurance Estimates from the American Community Survey (Memo), and Kentucky Health Insurance Coverage 2014/Estimates from the American Community Survey ([Infographic](#))
- Quarterly Meetings with Oversight Committee to solicit ideas and feedback
- Survey instrument for use in Year 2

In addition, SHADAC staff tracked relevant developments in Kentucky including newly-published studies, data, and state policy decisions; we did this through continuous scanning of media coverage, peer-reviewed publications, and grey literature, and by attending relevant conferences and meetings. SHADAC has also had discussions (joined by Foundation staff) with some key stakeholders (including the Cabinet for Health and Family Services, Kentucky Youth Advocates, and the Kentucky Hospital Association) to exchange ideas and discuss policy developments and potential data sources for the study. During Year 1, SHADAC also began preparation for primary qualitative and quantitative data collection to be conducted in Year 2. We are on schedule to complete all primary data collection in Year 2, and to continue analysis of secondary data sources for the study's ongoing metrics.

## II. STUDY FINDINGS: DATA UPDATE

### DOMAIN #1: HEALTH INSURANCE COVERAGE

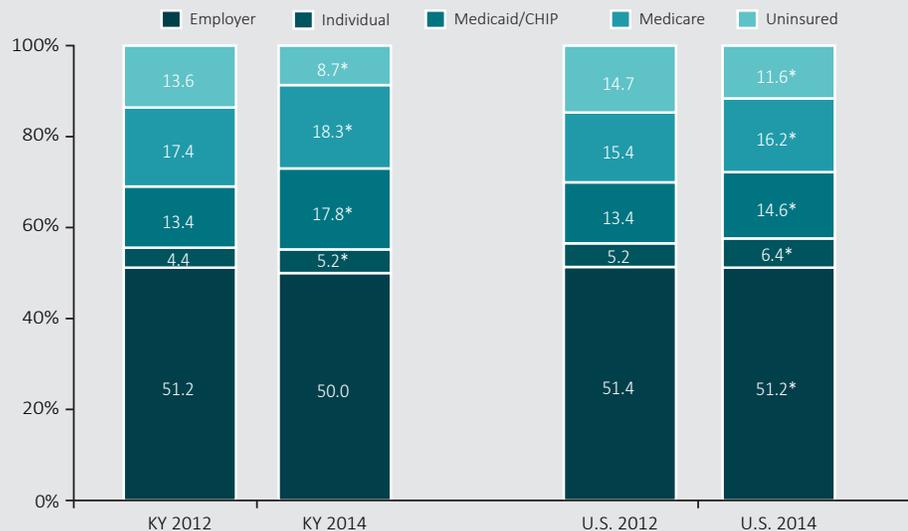
Health insurance coverage is a critical component of access to health care services. Having health insurance is associated with increased access to needed medical care, better health care outcomes, and improved health status.<sup>2</sup> In this study, the metrics used to monitor health insurance coverage in Kentucky and over time include the distribution of type of health insurance coverage (public, private and uninsured); rates of underinsurance; and the percentage of employers that offer health insurance coverage. Our data sources in this domain include federal surveys that provide state-level estimates of health insurance coverage including the American Community Survey (ACS), the Medical Expenditure Panel Survey-Insurance Component (MEPS-IC) and the Current Population Survey (CPS).

Overall, Kentucky's coverage rates have improved substantially among almost all race, gender, age, and income groups since 2012. In 2014, Kentucky's overall rate of uninsurance fell to 8.7%, a 4.9 percentage point drop compared to 2012. Kentucky's uninsurance rate remained statistically significantly lower than the U.S. rate of

11.6%. However, disparities in coverage do persist, as the charts in this section show in detail. For example, the uninsurance rate for Kentucky's Hispanic/Latino population is more than triple the state's overall uninsurance rate, the rate for young adults (age 19-25) is more than double the overall rate, and the rate for the low-income population is one and a half times the overall rate.

“ In the domain of coverage, the metrics show that Kentucky has substantially improved coverage rates across most race, gender, age, and income groups since 2012. ”

**FIGURE 1.1:**  
Insurance Coverage by Type for Kentucky and the U.S., 2012 - 2014 (all ages)



\*Difference is statistically significant across years (e.g., 2012 Kentucky versus 2014 Kentucky) at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files. Insurance types are mutually exclusive. Since some people have multiple sources of coverage, a primary coverage hierarchy was used.

### DOMAIN #1: HEALTH INSURANCE COVERAGE

#### COVERAGE MEASURES

##### *Uninsurance Declines Significantly, Employer-based Coverage Remains Stable*

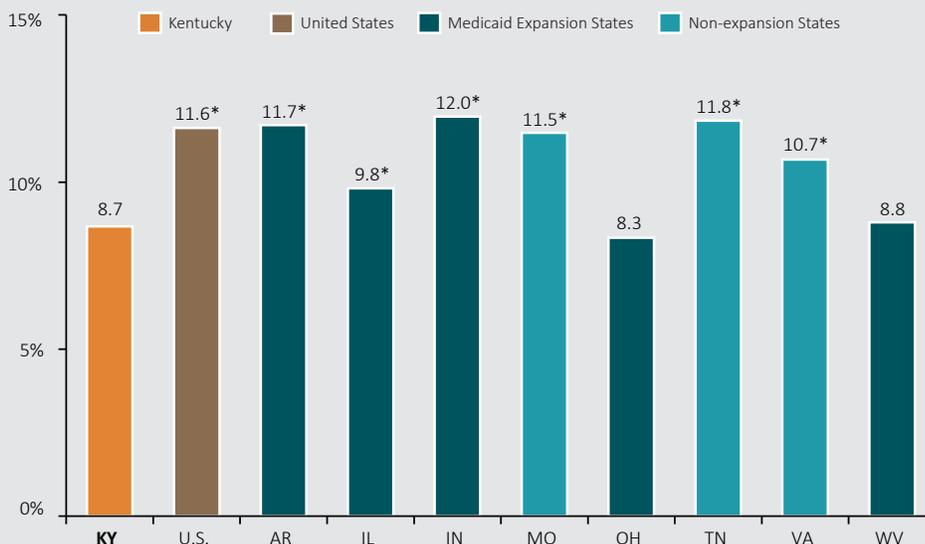
Figure 1.1 presents the distribution of the population by type of health insurance coverage (employer, individual, Medicaid/CHIP, Medicare, and uninsured), for 2012 and 2014. Kentucky's distribution of coverage in 2014 shows that employer-sponsored insurance (ESI) continued to be the largest source of coverage. Since 2012, the proportion of the Kentucky population with employer-based coverage has remained statistically unchanged, with 50.0% covered by ESI in 2014. This represents a change from the long-term trend of declining ESI coverage in Kentucky and nationally.<sup>3</sup> Medicare and Medicaid/Children's Health Insurance Plan (CHIP) followed ESI as the next-largest sources of coverage, at 18.3% and 17.8% respectively. In 2014, 5.2% of the population had individual or self-purchased insurance plans, up from 4.4% in 2012. Finally, the rate of uninsurance for Kentucky fell nearly 5 percentage points, from 13.6% at baseline to 8.7% in 2014 — a statistically significant decline. The increases in the share of the population with Medicaid/CHIP, Medicare and individual coverage were all statistically significant. In Figure 1.1 (and in all figures

in this report), statistically significant differences are marked with asterisks.

We also examine Kentucky's uninsurance rate compared to the national rate and to that of nearby states. Figure 1.2 shows uninsurance rates for Kentucky's bordering states, plus Arkansas, and the U.S. rate.<sup>4</sup> Overall, Kentucky's uninsurance rate is significantly lower than the U.S. and neighbor states, with the exception of Ohio and West Virginia. Additionally, Kentucky's 4.9 percentage point decline in uninsurance from 2012-2014 was significantly larger than the U.S. decline of 3.1 percentage points. Kentucky's decline during that time was also steeper than the declines of these comparison states, except for Arkansas and West Virginia which saw declines statistically equal to Kentucky's. To see how Kentucky's uninsurance rate has changed between 2012 and 2014 relative to neighboring states, see Appendix II Figure 1.

##### *Hispanics/Latinos Only Group Without Gains in Coverage*

The following four figures present *uninsured rates by race/ethnicity, age, income category, and gender* for Kentucky.

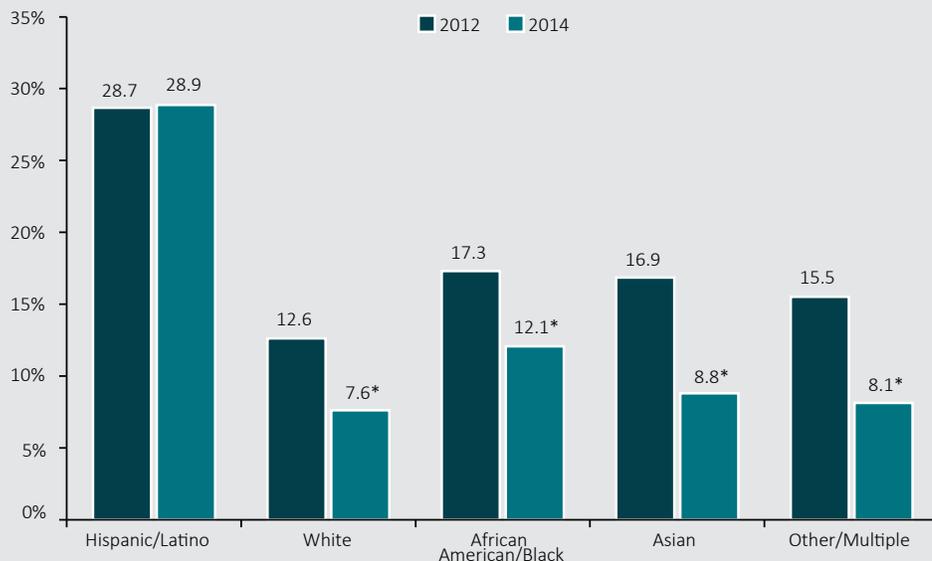


**FIGURE 1.2:**

Uninsurance, Kentucky Compared to Neighbor States and U.S. Rate, 2014 (all ages)<sup>4</sup>

\*Difference is statistically significant across states (e.g., Kentucky versus Arkansas) at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files. Note: While Indiana is a Medicaid expansion state, the state did not expand its Medicaid program until 2015.

**FIGURE 1.3:**  
Uninsured Rates by  
Race/Ethnicity for  
Kentucky, 2012-2014  
(all ages)



\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files. The race categories reported are mutually exclusive. Hispanic includes all people reporting this ethnicity; all other Race/Ethnicity categories exclude Hispanic. People reporting more than one race are included in Other/Multiple.

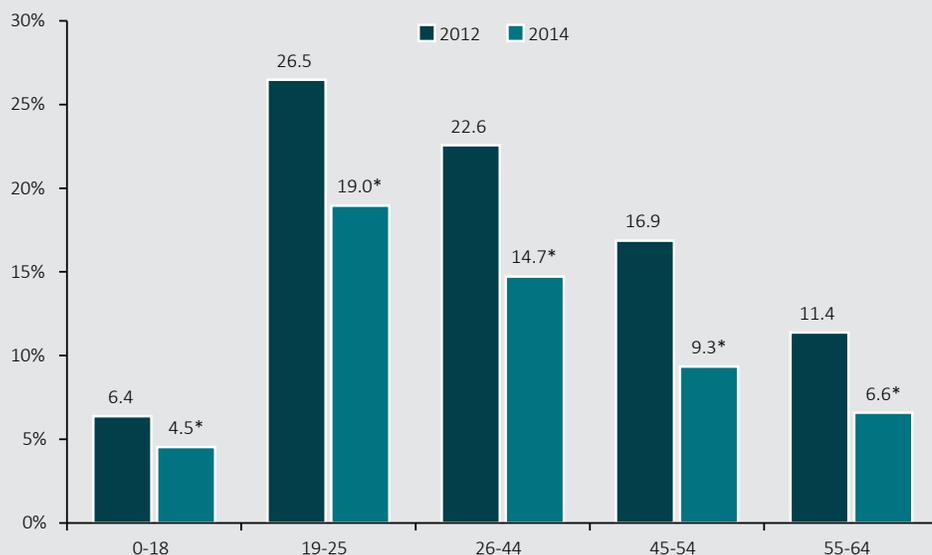
People of almost all race and ethnicity categories saw declines in uninsurance rates between 2012 and 2014 in Kentucky. In 2014, the Hispanic/Latino population had the highest rate of uninsurance, at 28.9%, and this is the only population that saw no improvement in coverage. From 2012-2014, uninsurance fell significantly among African Americans, Asians, Whites, and individuals of other or multiple races, with the largest

drops among Asians and those of other or multiple races (see Figure 1.3).

*Despite Drop, Young Adults Still Have Highest Uninsurance Rate*

Figure 1.4 provides estimates of percent uninsured by age category (up to age 64). All age groups saw significant declines in uninsurance rates during the period 2012-2014. While chil-

**FIGURE 1.4:**  
Uninsured Rates by Age  
Category for Kentucky,  
2012-2014 (ages 0-64)



\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files.

### DOMAIN #1: HEALTH INSURANCE COVERAGE

dren and older adults (age 55-64) experienced a significant decline, young to middle-age adults saw the largest declines in uninsurance—dropping 7.8 percentage points for Kentuckians age 26-44, and 7.5 points for those age 19-25 and age 45-54. However, young adults continue to have the highest rate of uninsurance compared to other age groups, while children continue to have the lowest rates of uninsurance, at 4.5% in 2014.

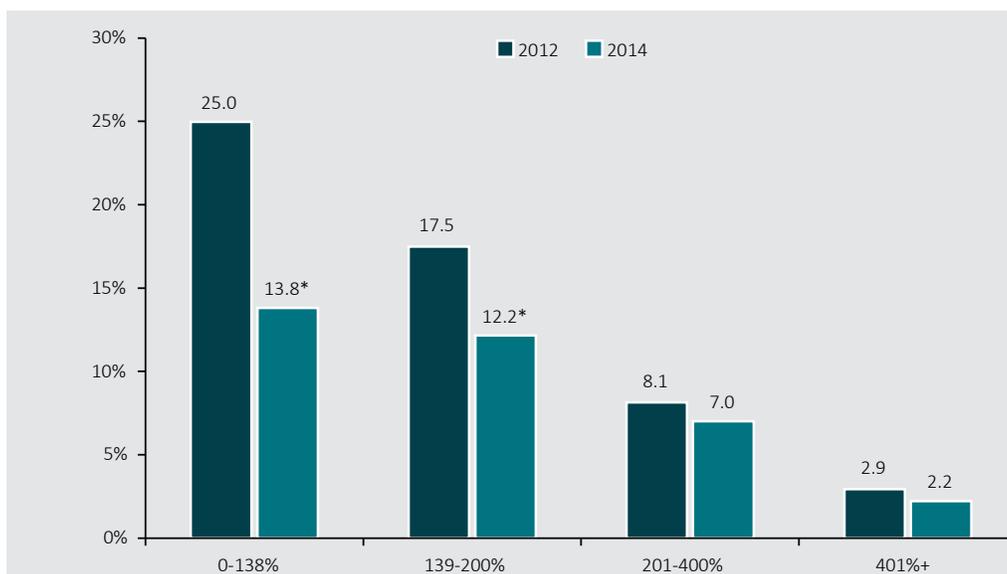
#### People with Lower Incomes Had Greatest Declines in Uninsurance

Figure 1.5 presents *uninsured rates by income category*. We use the Federal Poverty Guidelines (FPG) and ACA income eligibility levels for our income categories (see End Notes for 2014 FPG levels in dollars).<sup>5,6</sup> Figure 1.5 shows the relationship between income and uninsurance: as incomes rise, uninsurance rates decline. People with incomes below 138% of FPG had the highest uninsurance rates. However, this group also had the largest declines in uninsurance from 2012-2014, experiencing a significant drop of 11.2 percentage points. Those with incomes from 139 to 200% of FPG experienced a smaller 5.3 percentage point decline in uninsurance, but individuals with incomes higher than 200% of FPG did not see significant changes.

Figure 1.6 presents *uninsured rates by gender*. Both males and females experienced a significant 4.9 percentage point decline in uninsurance. However, Kentucky males remain more likely to be uninsured (9.9%) than females (7.5%) in 2014.

#### Nearly 1 in 4 Kentuckians Is Underinsured

Another measure of coverage, *underinsurance*, can occur regardless of coverage status or type of health insurance. While there are various ways to define underinsurance, for this study we consider families spending 10% or more of annual household income on health care (premiums, deductibles, and out-of-pocket expenses) during any given year to be underinsured.<sup>7,8,9,10</sup> SHADAC analysis of data from the CPS found that 22.5% of Kentuckians were underinsured in 2014, which was not significantly different from 2013.<sup>11</sup> It will be important to monitor underinsurance over time to gauge the affordability of coverage that individuals have obtained through kynect or as a result of the Medicaid expansion. For example, if many Kentuckians chose high deductible plans, uninsurance rates may decline but underinsurance may rise.



**FIGURE 1.5:**  
Uninsured Rates by Income as Percent of Federal Poverty Guidelines for Kentucky, 2012-2014 (all ages)

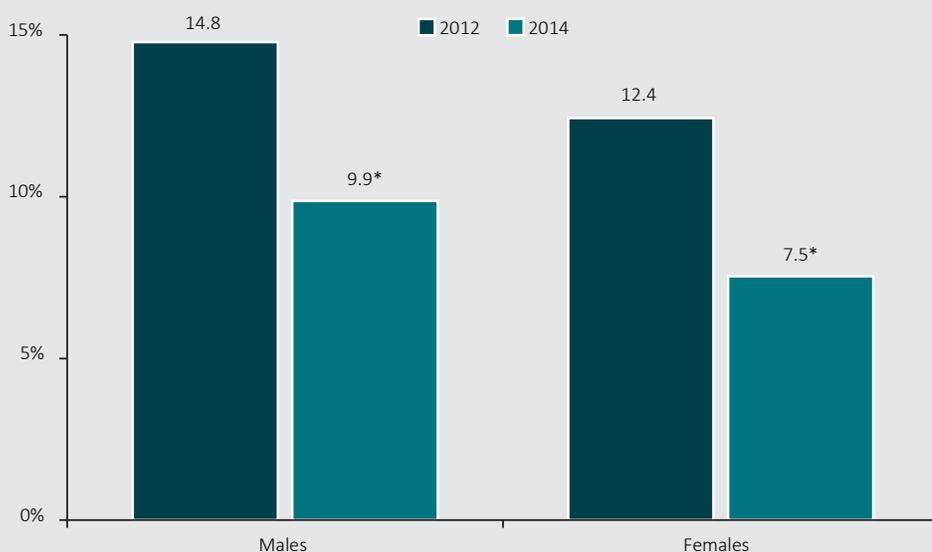
\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files. The family income uses the Health Insurance Unit (HIU), which may differ from the Census definition of a family. The HIU defines a family based on those individuals who would most likely be considered a "family unit" in determining eligibility for public or private coverage. This definition of a family is narrower than the one used by the Census Bureau.

### Share of Employers Offering Insurance Remains Stable Under ACA

Most people in the U.S. have health insurance coverage that is sponsored through an employer. This is true in Kentucky as well, where 50% of the population has employer-sponsored insurance (see Figure 1.1). Looking at *employer offer rates*, there has been no statistically significant change from 2012-2014. Overall, 50.4% of private-sector employers in Kentucky offered health

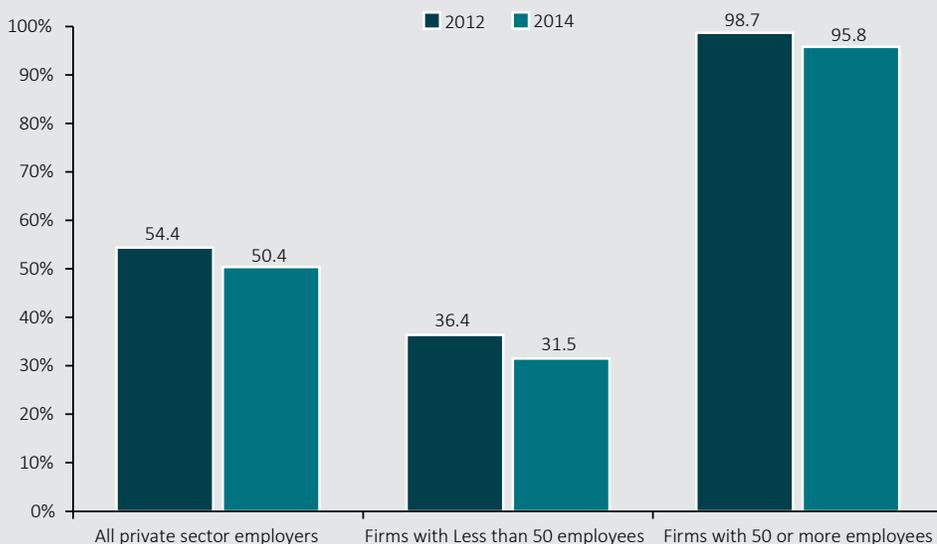
coverage in 2014, although this rate varies by the size of employers. Figure 1.7 shows that in 2014, 31.5% of Kentucky's small employers (fewer than 50 employees) and 95.8% of those with 50 or more workers offered coverage. This stability in employers offering coverage contrasts with a long-term decline nationally, although Kentucky has not seen the same statistically significant declines.<sup>3</sup>

**FIGURE 1.6:**  
Uninsured Rates by Gender for Kentucky, 2012-2014 (all ages)



\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files.

**FIGURE 1.7:**  
Employer Offer Rates by Private Sector Employers for Kentucky, 2012-2014



\*Difference is statistically significant at the 95% level. Source: 2012 and 2014 MEPS-IC. Estimates are for percent of private sector establishments that offer coverage by firm size.

## DOMAIN #2: ACCESS

The U.S. Institute of Medicine defines health care access as “the timely use of personal health services to achieve the best health outcomes.”<sup>12</sup> Even among those with health insurance coverage, financial and non-financial access barriers can persist.<sup>13</sup> We use 11 indicators to monitor health care access in this study – more indicators than in any other study domain.<sup>14</sup> For the access domain, we obtained data for six indicators from the National Health Interview Survey (NHIS), four measures from the National Survey on Drug Use and Health (NSDUH), and one indicator from the Behavioral Risk Factor Surveillance System (BRFSS). We include data for children under age 19 as well as non-elderly and elderly adults where data are available. The majority of metrics in this domain were only available through 2013 at the time of this report, while a few were available for 2014. In all cases, we present the most recent data available, compared to the 2012 baseline.<sup>15</sup>

Overall, the indicators show that health care access in Kentucky has been relatively stable since 2012, although there was a significant increase in the share of the population reporting having a

usual source of care, and a decline in emergency department use. As new data become available, future reports will provide more insight about any impacts of the ACA’s coverage expansions on access to health care services.

“ Overall, the indicators show that health care access in Kentucky has been relatively stable since 2012, although there was a statistically significant increase in the share of the population reporting having a usual source of care, and a decline in emergency department use.”

## ACCESS MEASURES

*More Report a Usual Source of Care*

Having a *usual source of care* is “a summary measure of adequate access to primary care”<sup>16</sup> and some studies have found it to be even more important for health outcomes than having health insurance.<sup>17</sup> The measure we use is from the NHIS, which asks, “Is there a place you usually go when you are sick or need advice about your health?” We also use responses to the follow up question: “what kind of place is it?” to make sure that emergency room visits were not considered to be a usual source of care.

Figure 2.1 presents the *percentage of Kentuckians reporting a usual source of care (not including an emergency room) by age and over time*. For all ages, the percentage increased from 83.6% in 2012 to 88.4% in 2013, a statistically significant change. This was true for both non-elderly adults (age 19-64), whose rate increased 6.1 percentage points to 83.7%, and elderly adults (age 65

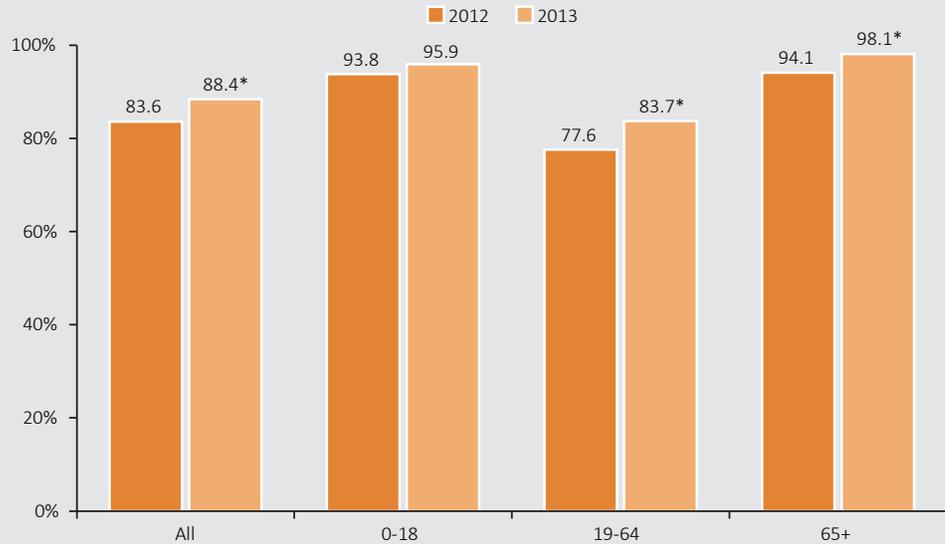
and older), whose rate increased 4.0 percentage points to 98.1%. However, children did not experience a significant change.

*More Than 1 in 3 Reacting to Drug Costs*

Another indicator of access is *changes in prescription drug usage due to cost*. This is a summary measure that includes: asking the doctor for cheaper medications, delaying refills, taking less medication than prescribed, skipping dosages, using alternative therapies, and/or buying medications out of the country. This measure indicates whether people are making decisions based on cost that may negatively affect their health. For this indicator, 2013 estimates are available only for non-elderly adults (ages 19-64). In 2013, 42.5% of Kentuckians report altering their prescription medications due to their cost, although this was not statistically different from 2012.

**FIGURE 2.1:**

Usual Source of Care by Age Category, Kentucky, 2012-2013



\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center.

### *Elderly Adults, Children Most Likely to Visit a Health Care Provider*

Having a visit with a health care provider during the past year is another way to gauge access to health care. For this measure, we include visits to a general provider in the 12 months preceding the survey. Results show that these levels held steady with no significant change from 2012-2013. As was the case at baseline, in 2013 children and elderly adults continued to be more likely to have seen a provider, 90.7% and 91.7%, respectively, compared to non-elderly adults (62.7%). Figure 2.2 presents the data by age category.

### *Fewer Kentuckians Using Emergency Department in Past Year*

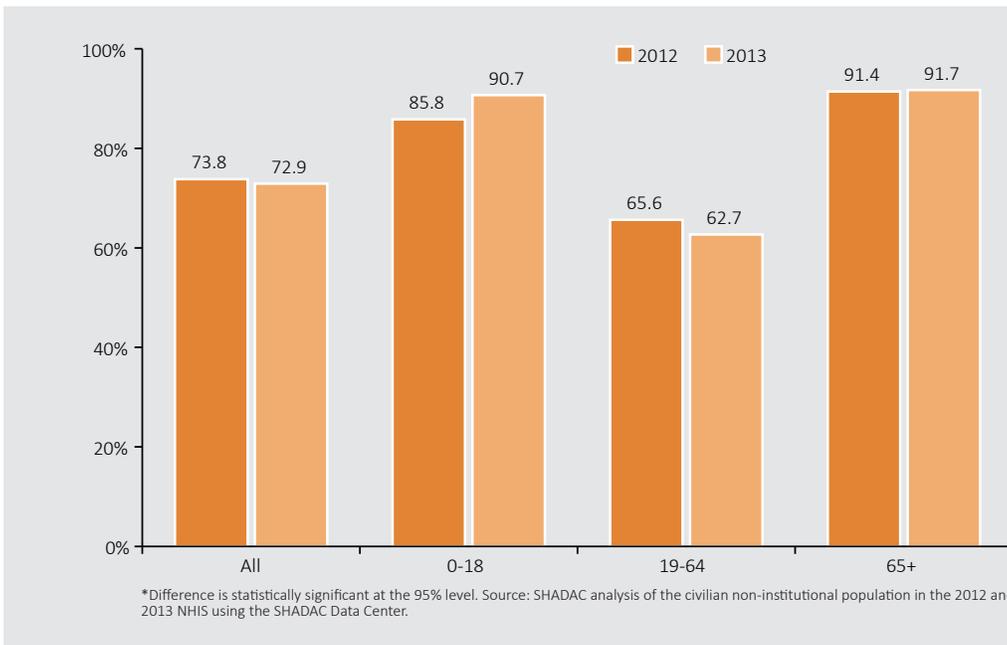
We also examine the prevalence of visits to an emergency department (ED) within the past year (again, 2012 data for pre-ACA baseline). According to the Agency for Healthcare Research and Quality (AHRQ), “ED utilization reflects the greater health needs of the surrounding community and may provide the only readily available care for individuals who cannot obtain care elsewhere. Many ED visits are ‘resource sensitive’ and potentially preventable, meaning that access to high-quality, community-based health care can prevent the need for a portion of ED visits.”<sup>18</sup>

Figure 2.3 presents the 2012-2013 ED visit data by age. Overall, ED use dropped from 30.4% to 24.9%, a statistically significant decrease. Elderly Kentuckians continued to be the most likely to have an ED visit, at 30.6%, followed by non-elderly adults (24.7%), and children (22.4%). It is possible that this decrease in ED use is linked to the increase in people having a usual source of care (Figure 2.1), though we do not have sufficient data to definitively determine a cause-effect relationship.

For this measure, we also present comparisons between Kentucky and nearby states (Figure 2.4). In 2013, although Kentucky’s ED use decreased, it was still significantly higher than the U.S. average and that of most nearby states. It will be important to monitor this indicator in the future to determine whether the state’s increases in health coverage narrow the gap in ED use between Kentucky and its neighbors. To see how Kentucky’s ED use has changed between 2012 and 2013 relative to neighboring states, see Appendix II Figure 2.

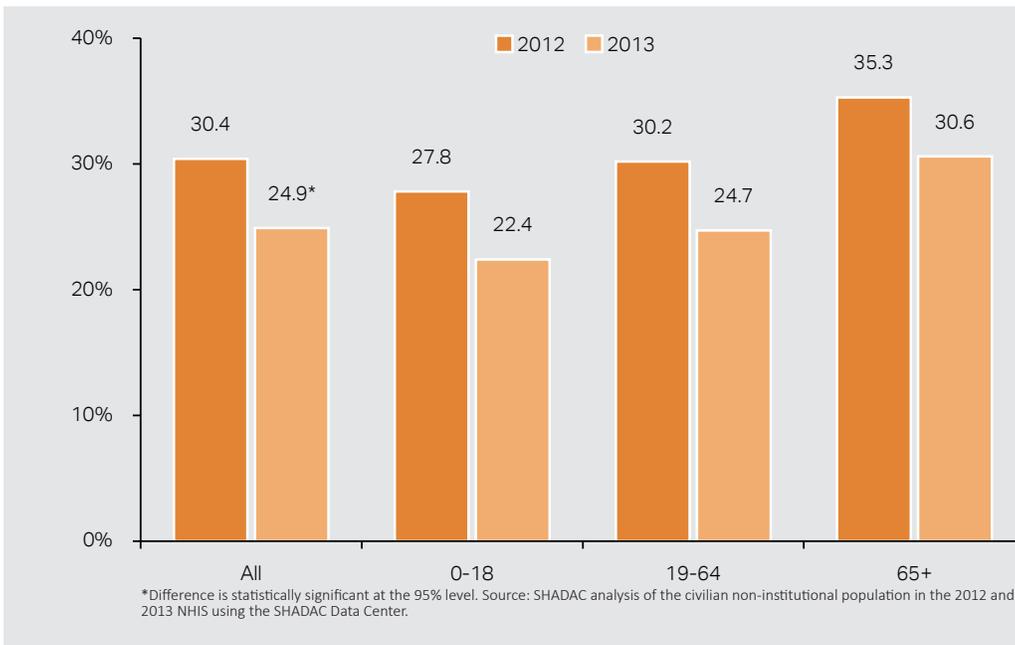
Dental care is an important part of overall health care.<sup>19</sup> We use data from the BRFSS to track the percentage of adults who had no dental visit in the past year. In 2014, 39% of adults in Kentucky reported not having a dental visit in the past year, which was statistically unchanged from 2012.

### DOMAIN #2: ACCESS



**FIGURE 2.2:**

Provider Visit in Past Year by Age Category, Kentucky, 2012-2013



**FIGURE 2.3:**

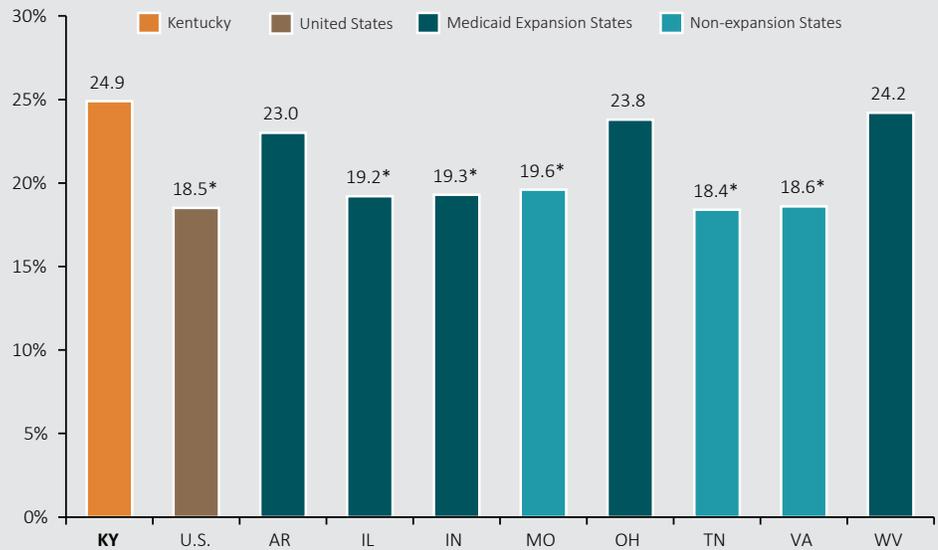
Emergency Department Visits in the Past Year by Age Category, Kentucky, 2012-2013

### Provider Availability Remains High

Being able to find a doctor when needed is an important component of health access. In 2013, 95.5% of Kentuckians surveyed said that they were able to find a doctor when needed, and this was not statistically different from 2012. Figure 2.5 shows provider availability across age categories; none of the changes from 2012-2013 were statistically significant.

When seeking medical care, some people face barriers with providers not accepting their insurance coverage. From 2012-2013, there was no significant change in Kentucky for the rate of patients reporting that providers would accept their coverage, with 97.1% of Kentuckians reporting acceptance in 2013 compared to 96.5% in 2012. There were also no significant changes within any age categories in Kentucky (Figure 2.6).

**FIGURE 2.4:**  
Emergency Department  
Visits in the Past Year,  
Kentucky Compared to  
Neighbor States and  
U.S. Rate, 2013<sup>4</sup>



\*Difference is statistically significant across states (e.g., Kentucky versus Arkansas) at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center. Note: While Indiana is a Medicaid expansion state, the state did not expand its Medicaid program until 2015

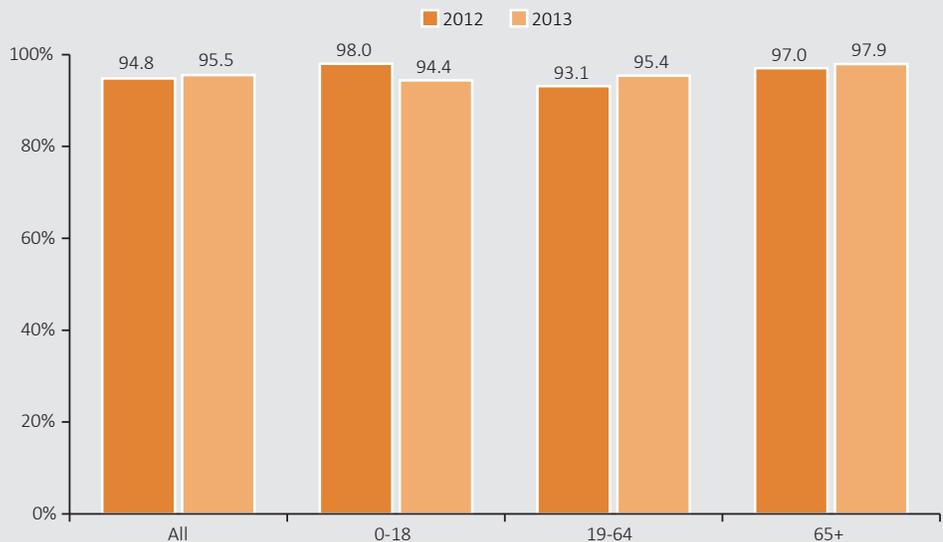
**Mental Health and Substance Use Stay Stable**

Those with mental illness and/or substance use problems have a specific need for health care services.<sup>20,21</sup> In this section we present prevalence and use based on available state-level data.

The U.S. Substance Abuse and Mental Health Services Administration administers an annual survey, the National Survey on Drug Use and Health (NSDUH), that collects information about the

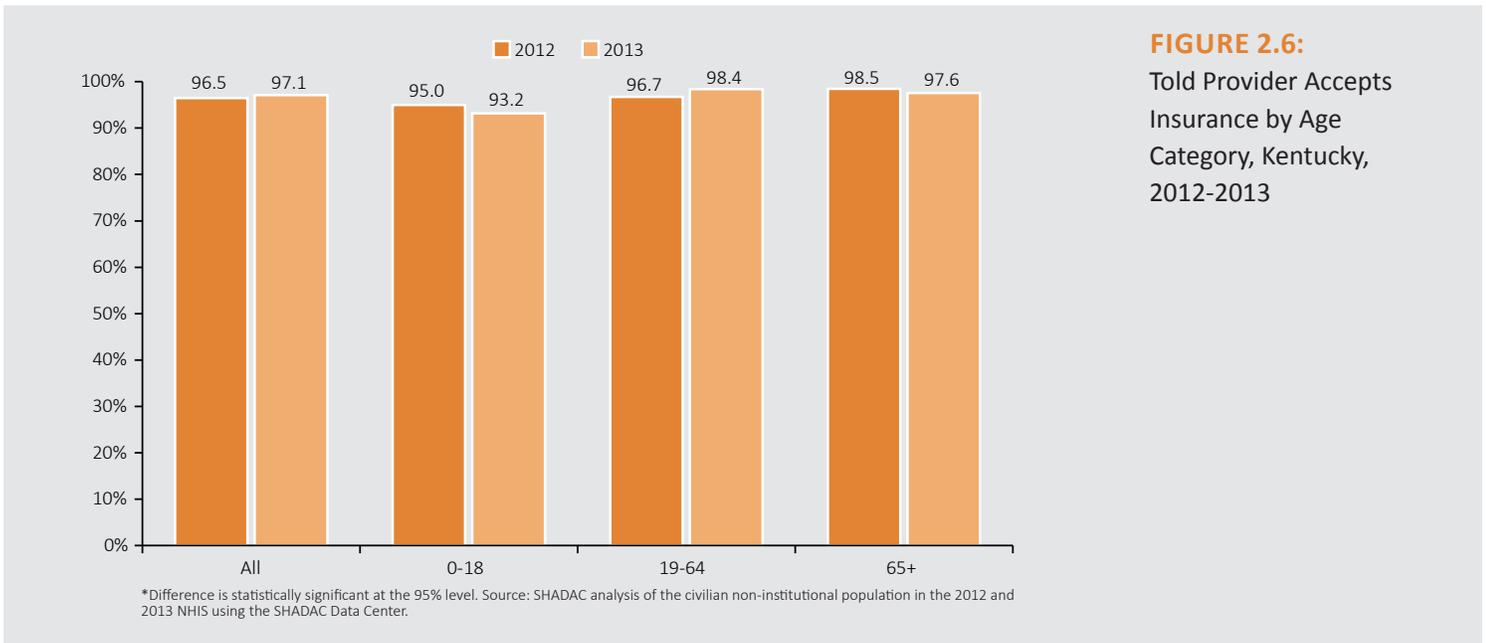
prevalence of mental health and substance use conditions, along with key indicators related to access to these services. Because the sample size is limited, data from this survey are pooled across two years to produce state-level estimates (i.e., the 2014 estimates are actually pooled 2013/2014 data and the 2012 estimates are pooled 2011/2012 data).

**FIGURE 2.5:**  
Found Doctor When  
Needed by Age  
Category, Kentucky,  
2012-2013



\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center.

### DOMAIN #2: ACCESS

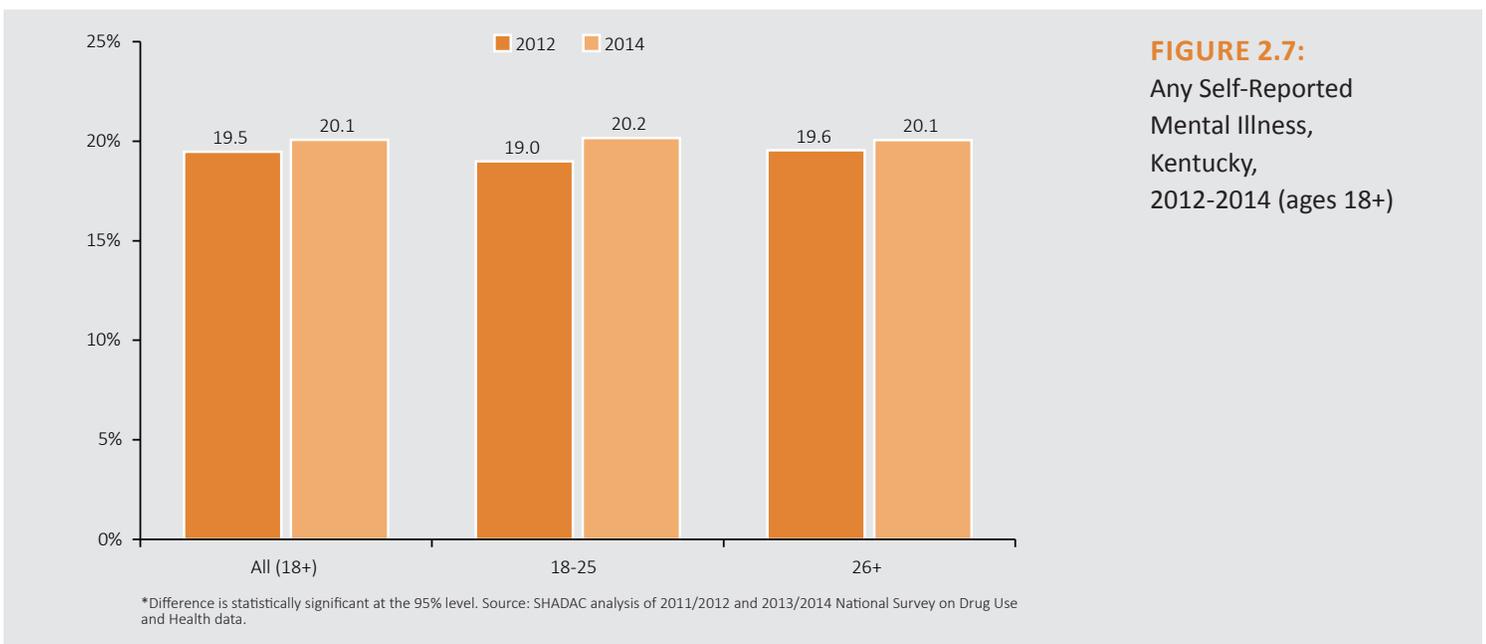


### 1 in 5 Kentucky Adults Report a Mental Illness

The NSDUH provides estimates of the *prevalence of any mental illness and serious mental illness*. Any mental illness is defined as “having any mental, behavioral, or emotional disorder in the past year that met DSM-IV criteria (excluding developmental and substance use disorders).” Serious mental illness is defined as “any mental, behavioral, or emotional disorder that substantially interfered with or limited one or more major life

activities.”<sup>22</sup> The prevalence of serious mental illness or any mental illness was statistically unchanged from 2012-2014. In 2014, 20.1% of Kentucky adults report any mental illness (see Figure 2.7), while a smaller 5.1% report serious mental illness (not shown).

Substance use – particularly heroin and prescription drug abuse – has emerged as a priority public health problem in Kentucky, with state proposals



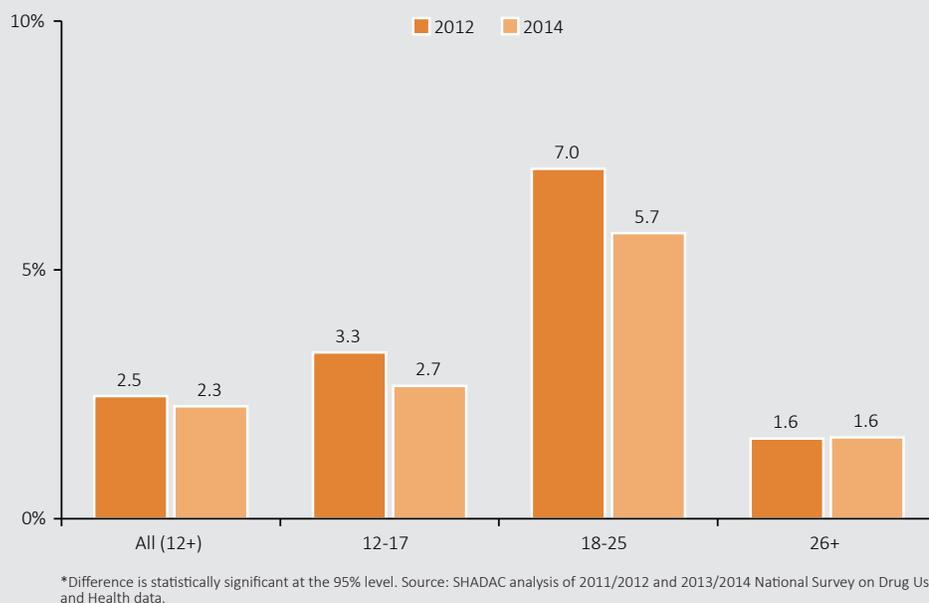
and efforts under way to curb substance use, improve access to treatment, and address the high rate of overdose deaths in recent years.<sup>23,24,25,26,27</sup>

**Young Adults Report Greatest Unmet Need for Substance Use Treatment**

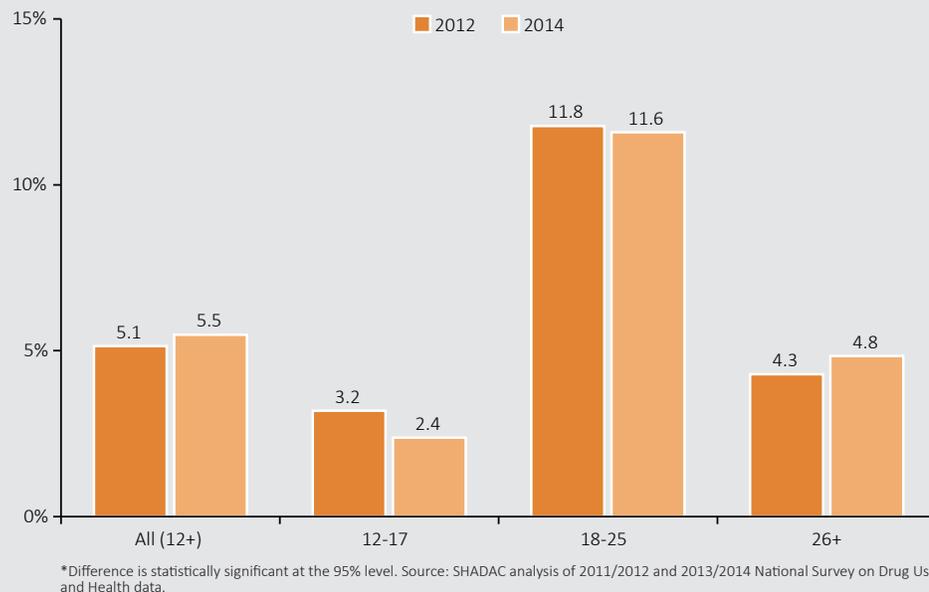
In 2014, Kentuckians ages 18-25 continued to have the highest rate of *unmet need for treatment for illicit drug use*, at 5.7%, followed by chil-

dren ages 12-17 (2.7%) and adults ages 26 and older (1.6%). The pattern is slightly different for *unmet need for treatment for alcohol use*, for which 18-25 year-olds still have the highest unmet need, but followed by adults ages 26 and over, and then children ages 12-17. None of these 2014 indicators were significantly different from 2012. These indicators are presented in Figures 2.8 (drugs) and 2.9 (alcohol).

**FIGURE 2.8:**  
Needed but Did Not Receive Illicit Drug Abuse Treatment by Age Category, Kentucky, 2012-2014 (ages 12+)



**FIGURE 2.9:**  
Needed but Did Not Receive Alcohol Abuse Treatment by Age Category, Kentucky, 2012-2014 (ages 12+)



#### DOMAIN #3: COST

Health care costs are a topic of concern for many families, with out-of-pocket costs —including premiums, co-pays, co-insurance and deductibles — varying by benefit plan. This is especially important in Kentucky, where the most recent estimates (2014) show that 19.1% of the population is living below the poverty level, compared to 15.5% nationwide. Kentucky’s poverty rate is the 5th highest in the country.<sup>28</sup> We include five metrics related to costs, focusing primarily on individual or household spending. Data sources for the cost measures include the NHIS, the MEPS-IC, and the CPS. Our estimates in the cost domain cover all ages, except where noted.

In the cost domain, most of our indicators are only available through 2013. As new data become available, we will continue to track any changes in this domain. For the 2013 data, health care costs were stable compared to the 2012 baseline.

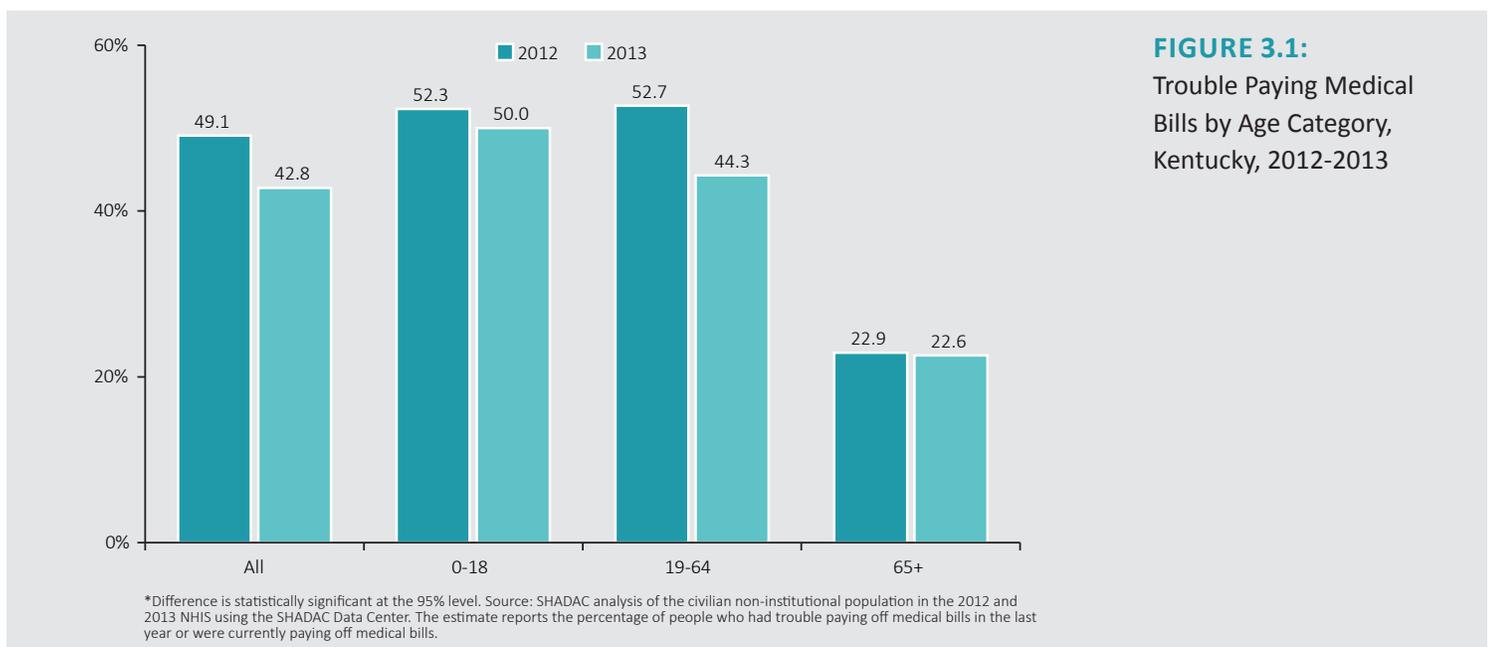
“Overall, health care cost estimates in our study were mostly unchanged between 2012 and 2013.”

#### COST MEASURES

##### More than 1 in 3 Kentuckians Report Trouble Paying Medical Bills

While 22.5% of Kentuckians were underinsured in 2014, almost twice as many report *trouble paying medical bills*, a related indicator. Across all age categories, 42.8% of Kentuckians surveyed in 2013 reported that their families had trouble paying medical bills. However, this is not significantly different from 2012. The pattern held true

across all age categories (Figure 3.1). This finding comes from SHADAC analysis of the NHIS, which asks, “In the past 12 months did [you/anyone in the family] have problems paying or were unable to pay any medical bills? Include bills for doctors, dentists, hospitals, therapists, medication, equipment, nursing home, or home care.”



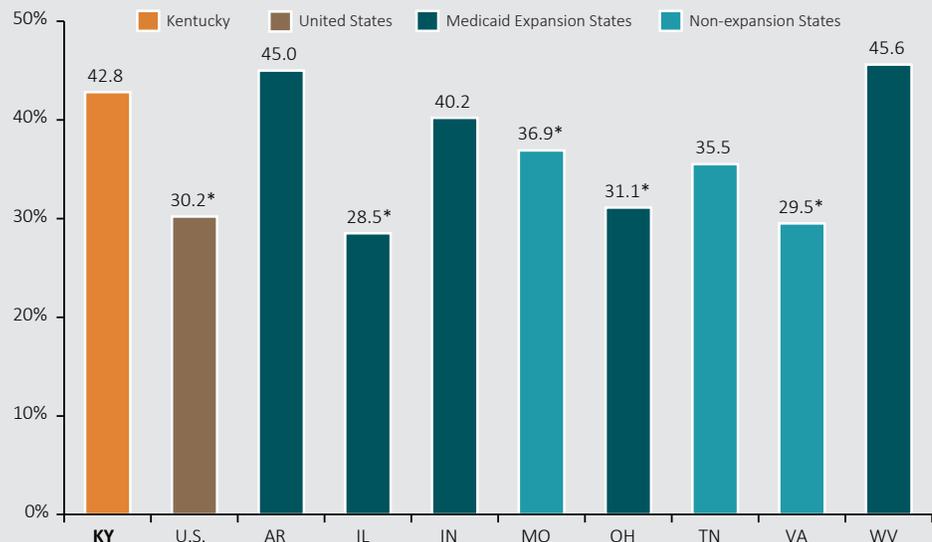
We also compare this metric to the national average and to Kentucky's neighbor states, in Figure 3.2. Kentucky had a higher percentage of people with trouble paying medical bills compared to the U.S., a difference that was statistically significant. Kentucky's rate also was significantly higher than all of the comparison states except Arkansas, Indiana, Tennessee, and West Virginia – which all had rates not statistically different than Kentucky.

To see how Kentucky's performance on this indicator has changed between 2012 and 2013 relative to neighboring states, see Appendix II Figure 3.

*No Significant Change in Delaying or Skipping Care Due to Cost*

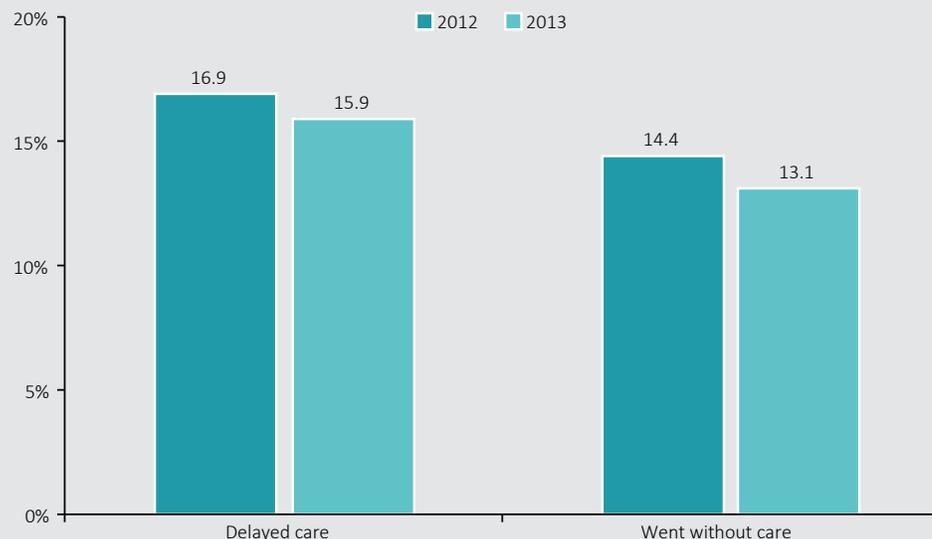
Delaying or not getting needed medical care can be a major impediment to good health out-

**FIGURE 3.2:**  
Trouble Paying Medical Bills, Kentucky Compared to Neighbor States and U.S. Rate, 2013 (all ages)<sup>4</sup>



\* Difference is statistically significant across states (e.g., Kentucky versus Arkansas) at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center. The estimate reports the percentage of people who had trouble paying off medical bills in the last year or were currently paying off medical bills. Note: While Indiana is a Medicaid expansion state, the state did not expand its Medicaid program until 2015.

**FIGURE 3.3:**  
Delayed or Went Without Needed Care Due to Cost, Kentucky, 2012-2013 (ages 19-64)



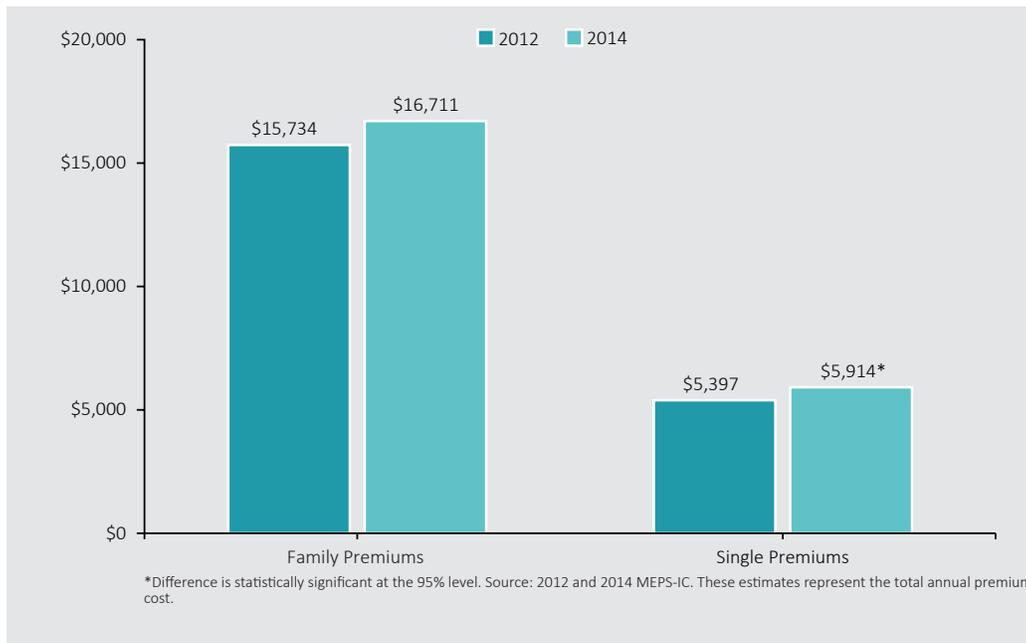
\*Difference is statistically significant at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center. These estimates report the percentage of people who delayed seeking medical care because of worry about the cost and the percentage of people who needed medical care but did not get it because they could not afford it in the last year.

### DOMAIN #3: COST

comes, and can sometimes cause serious conditions to go undetected or to get worse by being left untreated — resulting in worse health status and higher treatment costs. Cost is a reason frequently cited for delaying or going without medical care. In 2013, 15.9% of non-elderly adults reported *delaying needed care due to costs* (Figure 3.3), but this was not statistically different from 2012. At this time, data are not yet available for

other age groups or for 2014; however, it will be important to follow this indicator once later data become available.

Figure 3.3 also displays results for *going without needed care due to cost*. In 2013, 13.1% of Kentuckians reported going without needed care, but as with delayed care, this was not a significant change from the baseline. At this time, data are not yet available for 2014.



**FIGURE 3.4:**

Average Premium per Private Sector Employee in Dollars, Kentucky, 2012-2014

#### Premiums for Employer-based Single Coverage Increased, for Family Coverage Statistically Unchanged

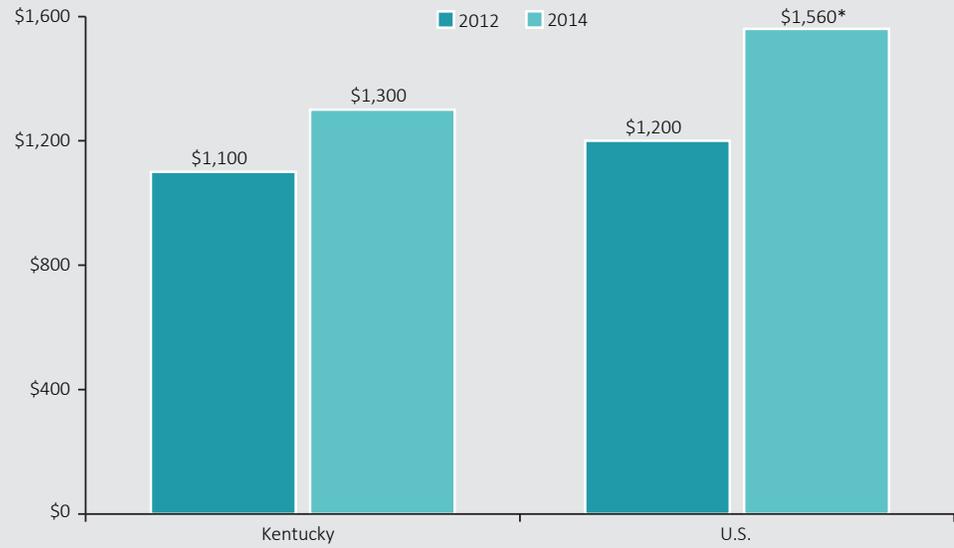
Figure 3.4 provides estimates of *spending on health insurance premiums*. In 2014, the average single premium for private-sector employer-sponsored insurance was \$5,914, a statistically significant increase of \$517 from 2012. The average family premium for employer-based coverage was \$16,711, but this was not significantly different from 2012. It is important to note that, like with long-term trends finding a decline in employers offering health insurance, premiums also have been increasing over the longer-term prior to the ACA.<sup>3</sup>

Examining individual spending on health care, Kentucky’s median out-of-pocket costs (Figure 3.5) were \$1,300 in 2014.

This is slightly higher than out-of-pocket costs in 2012, although the difference is not statistically significant. As a component of underinsurance measures, it will be important to monitor whether out-of-pocket costs change significantly over time.

“ It will be important to monitor whether out-of-pocket costs change significantly over time.”

**FIGURE 3.5:**  
Median Out-of-Pocket  
Spending in Dollars,  
Kentucky and U.S.,  
2012-2014



\*Difference is statistically significant across years (e.g., 2012 Kentucky versus 2014 Kentucky) at the 95% level. Source: Estimates were based on SHADAC's analysis of the civilian non-institutional population in the 2012 and 2014 CPS. Includes spending on premiums.

## DOMAIN #4: QUALITY

Achieving improvements in the quality of health care was a key goal of the ACA. There are a number of ways in which the law is focused on improving the quality of care, including avoiding preventable readmissions, increasing the utilization of preventative care, and encouraging recommended health practices, such as breastfeeding for infants. Our study includes nine metrics that relate to quality of care, focusing both on hospital quality and aggregate measures of preventive care utilization. For this report, updated data were only available on two of these mea-

asures, including one from BRFSS and one from vital statistics systems data. Data in this domain cover all ages except where noted, and are updated through 2014.

No new data are available from our sources for most of the metrics in this domain (e.g., breastfeeding rates, unprotected sex among youth, condition-specific hospital re-admission rates) but we will include updated data in future reports.

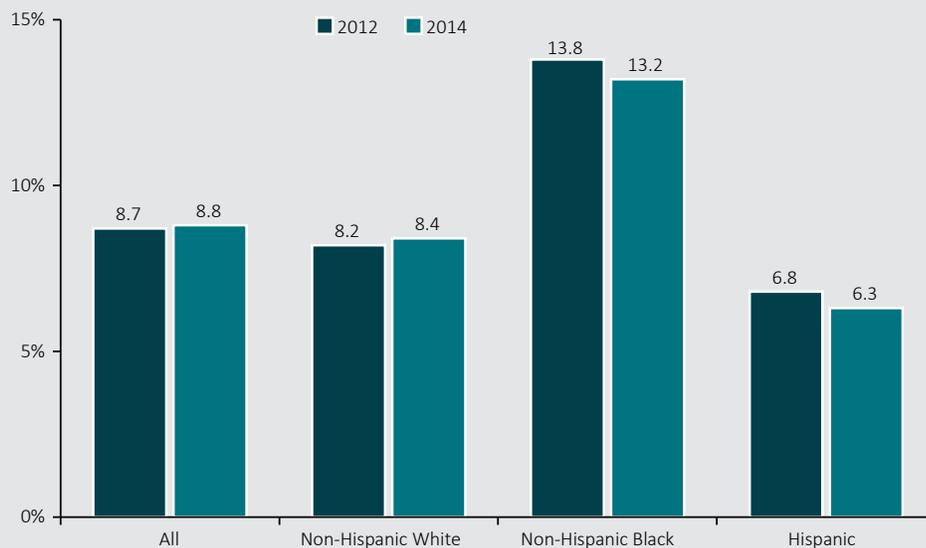
### QUALITY MEASURES

#### Racial Disparities Continue in Low Birth Weight

According to the Centers for Disease Control and Prevention (CDC), *low birth weight* (defined as less than 5 pounds, 8 ounces) is “the single most important factor affecting neonatal mortality and a significant determinant of post-neonatal mortality. Low birth weight infants who survive are at increased risk for health problems ranging from neurodevelopmental disabilities to respiratory disorders.”<sup>29</sup> The U.S. Department of Health and Human Services has set a national target to

reduce low birth weight to 7.8% of live births by 2020, (the national rate was 8.0% in 2014).<sup>30</sup>

“Non-Hispanic blacks continued to have the highest rate of low birth weight in Kentucky.”



Source: 2012 and 2014 National Vital Statistics Reports, Supplemental Tables (Table 1-9). Percent of low birth weight births (<5 pounds 8 ounces).

**FIGURE 4.1:**

Low Birth Weight for Births by Race/Ethnicity, Kentucky, 2012-2014

In 2014, 8.8% of live births in Kentucky were reported as having low birth weight, compared to 8.7% in 2012 and 9% in 2013. Figure 4.1 shows disaggregated trend data for low birth weight by race/ethnicity from 2012-2014. In 2014, non-Hispanic blacks continued to have the highest rate of low birth weight in Kentucky (13.2%), followed by non-Hispanic whites (8.4%) and Hispanics (6.3%). It will be important to monitor low birth weight in future reports to determine whether improvements in health insurance coverage for Kentucky's black population narrows this disparity. Due to the nature of this measure, statistical significance testing is not possible in this case.

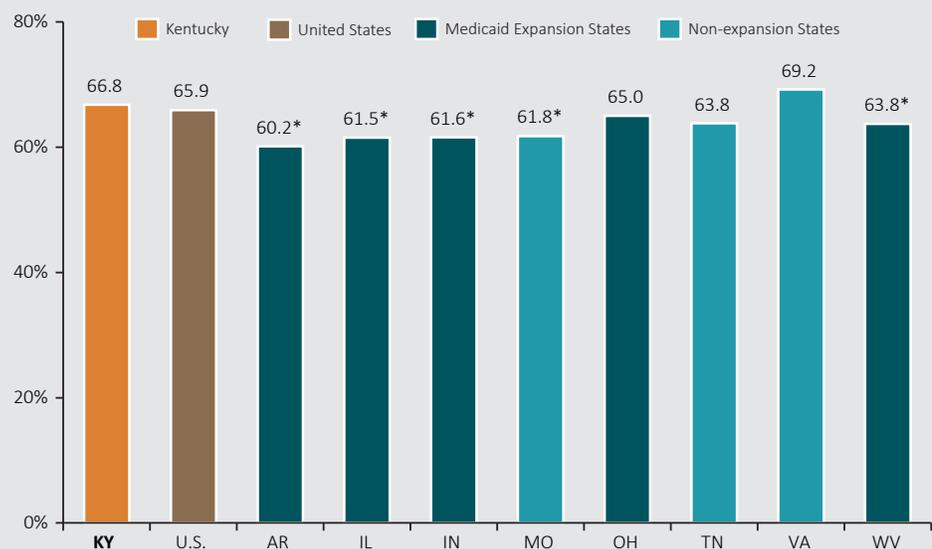
### Increased Colorectal Screenings Bring Kentucky On Par With U.S.

Preventive care utilization for adults also is important because early, lower-cost health interventions may prevent or reduce the severity of higher-cost, severe health problems. Our study tracks three services in this area: *cholesterol awareness, colorectal cancer screening, and receiving a tetanus shot*. New post-baseline data are not yet available for cholesterol awareness or tetanus shots, but we expect updates in 2016. Colorectal cancer screening estimates for 2014 are presented below. This metric reports the percentage of adults age 50 to 75 who have met guidelines for receiving colorectal cancer screening within

certain time periods.<sup>31</sup> In 2014, 66.8% of respondents reported having had a colorectal cancer screening, a statistically significant increase of 4.4 percentage points since 2012 (see Appendix II Figure 4). This continues a longer-term trend of improving colorectal cancer screening rates in Kentucky.<sup>32,33</sup> For this measure, we also compare Kentucky to the U.S. and neighboring states. Figure 4.2 shows the results. While Kentucky's rate of colorectal screening was not significantly different from the U.S., it was significantly higher than five of the eight comparison states. To see how Kentucky's performance on this colorectal cancer screening indicator has changed between 2012 and 2014 relative to neighboring states, see Appendix II Figure 4.

“66.8% of respondents reported having had a colorectal cancer screening, a statistically significant increase.”

**FIGURE 4.2:**  
Colorectal Cancer Screenings, Kentucky and Neighboring States, 2014 (ages 50-75)<sup>4</sup>



\*Difference is statistically significant across states (e.g., Kentucky versus Arkansas) at the 95% level. Source: Estimates are based on SHADAC analysis of 2014 BRFSS survey data of the percentage of adults who met U.S. Preventive Services Task Force colorectal cancer screening recommendations. Note: While Indiana is a Medicaid expansion state, the state did not expand its Medicaid program until 2015.

## DOMAIN #5: HEALTH OUTCOMES

## DOMAIN #5: HEALTH OUTCOMES

An ultimate goal of the improvements in the prior study domains—coverage, access, cost and quality—is improved health for Kentucky’s population. Health outcomes are determined by a combination of factors including genetics, behaviors, environmental exposures, social factors, and health care services and policies.<sup>34</sup> Although these determinants are complex, the outcome measures included in this report are at least partially influenced by access to high quality care. While health outcomes are slow to change at a state or national level, monitoring them is key to understanding the impacts of efforts to improve health in Kentucky. In this study, we use four measures of health outcomes: obesity rates, self-reported health status, prevalence of chronic disease, and premature death. These measures are based on

data from the BRFSS, Youth Risk Behavior Surveillance System (YRBSS) and CDC vital statistics.

Overall, the health status measures were relatively stable from 2012-2014. Kentucky continued to fare poorly on these indicators compared to neighboring states and the U.S. overall.

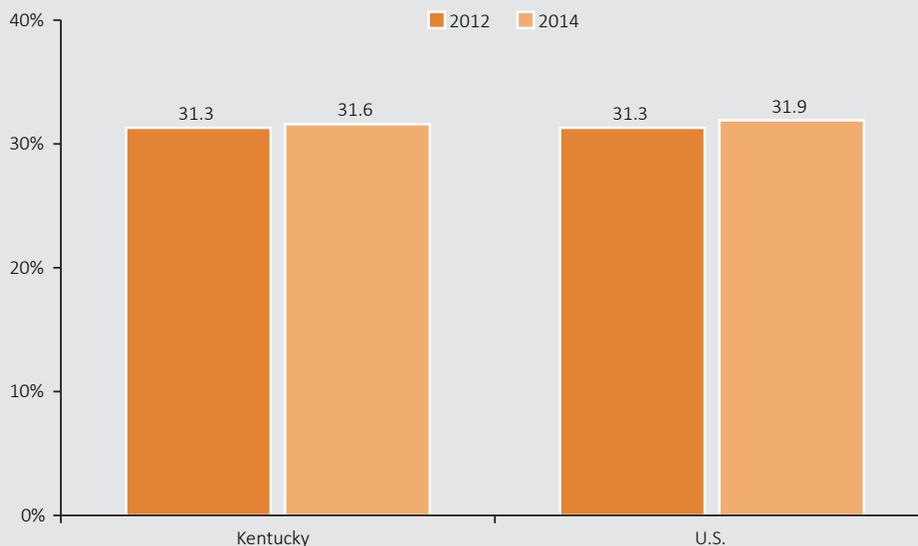
“Overall, health status measures were relatively stable from 2012 to 2014.”

## HEALTH OUTCOMES MEASURES

*Kentucky’s Adult Obesity Rate Remains Stable*

Obesity is associated with a range of chronic conditions, including heart disease, high blood pressure, and diabetes.<sup>35</sup> Obesity is prevalent among adults and children in the U.S., though rates among children have stabilized in recent years.<sup>36</sup>

Figure 5.1 shows estimates of the *prevalence of obesity* among Kentuckians (ages 18 and older) from 2012-2014. Nearly one third of adults in Kentucky were classified as obese, and this rate held statistically steady from 2012-2014.

**FIGURE 5.1:**

Self-Reported Obesity, Kentucky and the U.S., 2012-2014 (ages 18+)

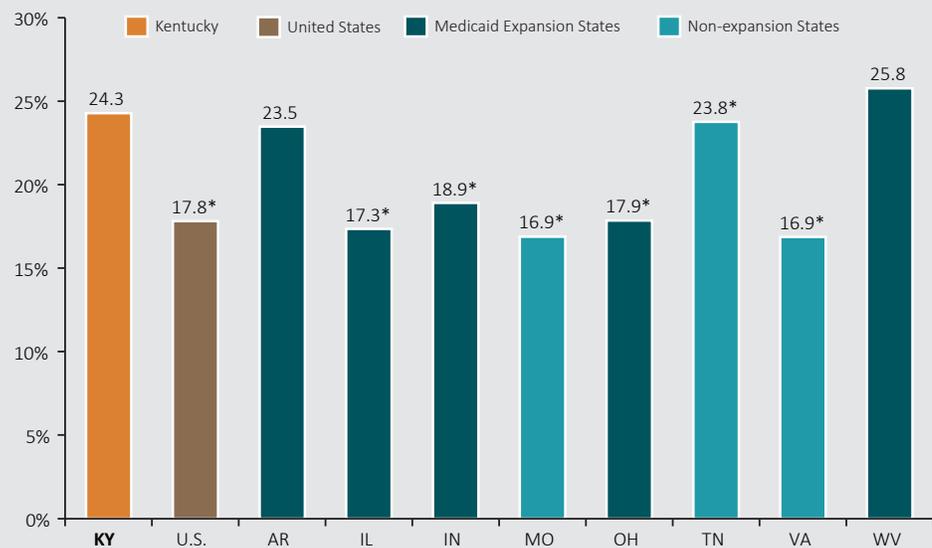
\*Difference is statistically significant across years (e.g., 2012 Kentucky versus 2014 Kentucky) at the 95% level. Source: The Kentucky estimates are based on SHADAC analysis of 2012 and 2014 BRFSS survey data, and the U.S. estimates are based on NHIS using the RWJF DataHub. The estimates report the percentage of adults with a Body Mass Index of over 30.

### Nearly 1 in 4 Kentucky Adults Report Fair or Poor Health

Research has consistently shown *self-reported health status* from surveys to be a valid predictor of mortality.<sup>37</sup> The BRFSS survey asks, “Would you say that in general your health is excellent, very good, good, fair, or poor?” In 2014, 24.3% of adults surveyed in Kentucky reported poor or fair health. Although this is not significantly different from Kentucky’s rate in 2012, Kentuckians have consistently reported significantly higher rates of poor or fair health than the U.S. average (17.8% in 2014).

We also compare Kentucky’s self-reported health status to nearby states, presented in Figure 5.2. Kentucky compares poorly to its neighbors on this measure, with all comparison states reporting lower rates of poor or fair health in 2014, except Arkansas and West Virginia, which reported rates statistically no different than Kentucky’s. To see how the rate of Kentuckians reporting fair or poor health has changed between 2012 and 2014 relative to neighboring states, see Appendix II Figure 5.

**FIGURE 5.2:**  
Poor/Fair Health,  
Kentucky and Neighboring  
States, 2014 (ages 18+)<sup>4</sup>



<sup>4</sup>Difference is statistically significant across states (e.g., Kentucky versus Arkansas) at the 95% level. Source: Estimates are based on SHADAC analysis of 2014 BRFSS survey data of the percentage of adults who self-report having poor or fair health. Note: While Indiana is a Medicaid expansion state, the state did not expand its Medicaid program until 2015.

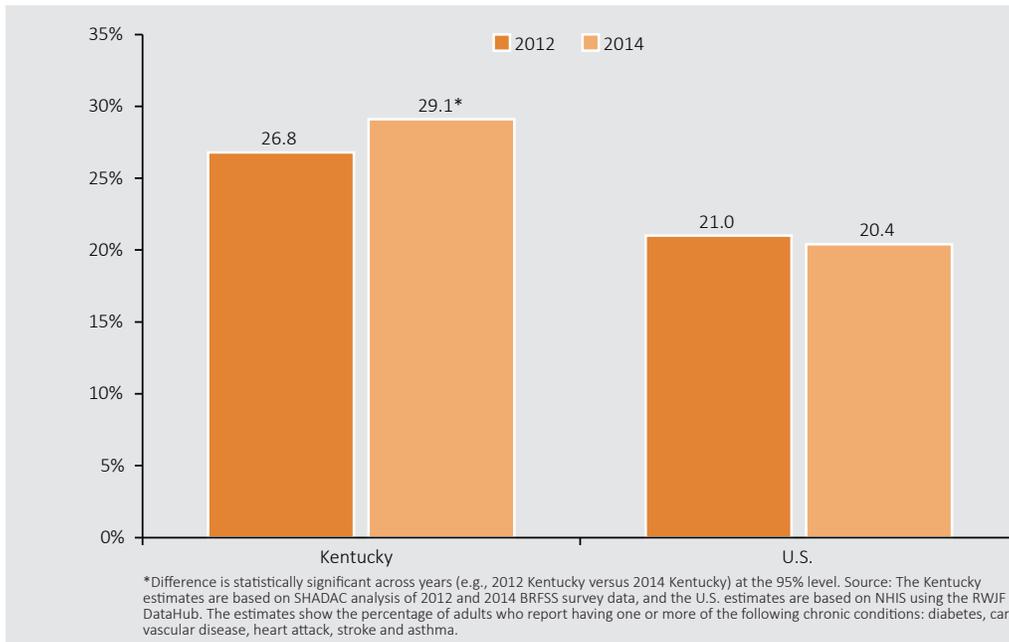
### More Kentucky Adults Report Having Chronic Conditions

Chronic diseases result in large cost and social burdens. The CDC estimates that chronic conditions are the cause of 7 of every 10 deaths in the U.S., and that the cost of treating these conditions consumes 86% of U.S. health expenditures each year.<sup>38</sup> In this study, we estimate the burden of chronic disease using BRFSS data; our estimates include the *percentage of adults reporting one or more of the following conditions: diabetes, cardiovascular disease, heart attack, stroke, and asthma*. Figure 5.3 shows that in 2014, 29.1% of adults in Kentucky reported having one or more

of these conditions, a statistically significant increase from the 2012 level of 26.8%.

Increased health insurance coverage, and the provisions under the ACA that ensure access to preventive services without cost sharing could explain the increase in diagnosed chronic conditions. For example, there may be an increase in self-reported chronic conditions because people who were uninsured prior to the ACA were diagnosed once they were finally able to access health care.

## DOMAIN #5: HEALTH OUTCOMES



**FIGURE 5.3:**  
Chronic Disease  
Prevalence, Kentucky  
and the U.S., 2012-  
2014 (ages 18+)

### Early Death Remains Relatively Stable in Kentucky, But Higher Than U.S.

The final metric presented in this report is premature death (defined in this study as before age 75). This measure, sometimes called the *Years of Potential Life Lost* (YPLL), is calculated from vital statistics data. The National Center for Health Statistics (NCHS) describes YPLL this way: “YPLL is a summary measure of premature mortality (early death). It represents the total number of years not lived by people who die before reaching a giv-

en age.”<sup>39</sup> In other words, if life expectancy is 75 years, and a person dies at age 50, she loses 25 potential years. By adding all the years of life lost to early death, we estimate the number of YPLL for Kentucky.

In Kentucky, in 2014, there were a total of 8,844 YPLL due to premature death, down slightly from 8,869 in 2012. This rate is higher than the U.S. average of 6,412. Testing of statistical significance was not possible with this data source.

### III. DISCUSSION & NEXT STEPS

#### *Discussion*

The early impacts of the ACA in Kentucky have been substantial in terms of increasing access to health insurance coverage and access to needed health care services. From 2012 to 2014, the commonwealth's overall rate of uninsurance fell 4.9 percentage points, driven by the expansion of its Medicaid program and private health coverage offered through kynect. This decline in uninsurance has been one of the largest in the U.S. and significantly larger than most neighboring states.<sup>40,41</sup>

Despite concerns about a drop in employer-sponsored coverage, the new coverage options under the ACA do not appear to have undermined employer-based coverage in Kentucky, which has remained stable with employers providing coverage to half of Kentuckians. We also found that from 2012 to 2013, more Kentuckians reported having a usual source of health care services and reduced use of emergency department services. While these changes occurred before the 2014 implementation of the ACA, it will be important to continue monitoring these indicators to understand any impacts of health reforms.

Yet, the early findings also point to persistent challenges in improving health status and the affordability of coverage. We found that despite increases in coverage, nearly 1 in 4 Kentuckians are underinsured, paying out-of-pocket health care costs exceeding 10% of their income. In addition, 1 in 4 Kentuckians continue to report poor or fair health, pointing toward a continued need to focus on health status, such as Kentucky's obesity rate (which did not change).

As Kentucky continues to adopt new reforms its health care system — such as proposals to transition the state from kynect, its State-based Marketplace, to the Federally Facilitated Marketplace, Healthcare.gov — this report provides a look at both the early impacts of the ACA in Kentucky and baseline data. These data will allow for the continued monitoring of access and coverage in Kentucky over time and as the state considers new options for reforming its health care system.

#### *Next Steps*

This annual report provides the first comparison years of data after the baseline assessment of the health care environment in Kentucky across the domains of coverage, access, cost, quality, and health outcomes. The indicators presented a favorable view of health care coverage in which Kentucky saw substantial improvements in the 2012-2014 period, and these improvements were across many demographic categories in the population. For other study domains, the indicators showed more room for improvement in areas associated with health care affordability, access, and outcomes. These domains and metrics will continue to be key focus areas as we assess the impact of the ACA implementation in Kentucky over the course of the study.

As the study proceeds, SHADAC will use future semi-annual and annual reports to document further developments in the health care situation in Kentucky. SHADAC will collaborate with the Foundation and the ACA Impact Study Oversight Committee on key next steps for the study, which include:

- Conducting the Kentucky Health Reform Survey (K-HRS) in March-April 2016.
- Conducting focus groups and key informant interviews in summer 2016.
- Continued production of Quarterly Data Snapshots to show change in indicators that have more frequent data availability.
- Production of two special reports or issue briefs in 2016, on a topic to be agreed upon with the Foundation.
- The Year 2 semi-annual report, with data updates (as available) to the standard metrics presented here, to be submitted in August 2016.

## IV. APPENDIX I: DATA SOURCES, METHODS, & INDICATORS

*In this Appendix, we describe our data collection procedures and methods for estimating the indicators for the study. The Appendix is organized by data source, and it includes a brief data source description, a discussion on how the estimates were obtained, and some notes about specific indicators where relevant.*

### *American Community Survey (2012, 2014)*

The American Community Survey (ACS) is a federal survey conducted by the U.S. Census Bureau. The ACS asks about demographic and socioeconomic characteristics, and it includes a question on current health insurance coverage. Despite the availability of other sources to estimate health insurance coverage, we consider the ACS the best source for annual state-level estimates, particularly for states that have relatively low population sizes, like Kentucky. The reason is that it has a large sample size relative to other federal surveys (more than 3.5 million people nationally and more than 51,000 in Kentucky in 2014). This allows us to provide estimates by subpopulations at higher levels of precision than would be possible using other federal surveys. An additional advantage is that we are able to use the ACS public use file to create custom variables that are specific to analyzing the impact of the ACA.

In this report, we use data from the ACS to estimate insurance coverage by type and to estimate the percent uninsured by five different characteristics. When reporting the distribution of insurance coverage, SHADAC uses a mutually exclusive variable based on the concept of primary coverage; a hierarchy is imposed to avoid double counting people with multiple sources of coverage. For adults, priority is given to Medicare coverage, followed by employer-based insurance (including military coverage), Medicaid, and directly purchased coverage, respectively. For children, priority is assigned to ESI, followed by Medicaid/CHIP, individual coverage, and Medicare, respectively. For example, someone with coverage through their employer who also has directly purchased supplemental private coverage would be considered as having employer coverage.

For analysis purposes, the definition of a family is important because eligibility for health insurance coverage is often based on family relationships and size. SHADAC suggests defining a family using the concept of a Health Insurance Unit (available [here](#)). This is particularly important for defining different income eligibility categories.

### *Current Population Survey (2012, 2013, 2014)*

The Current Population Survey (CPS) is a federal survey conducted by the U.S. Census Bureau, sponsored jointly with the U.S. Department of Labor/Bureau of Labor Statistics. The CPS Annual Social and Economic Supplement, collected annually between the months of February and April, asks about health insurance coverage for the prior calendar year and is combined with information from the main CPS survey on determinants of health insurance coverage such as employer size, household spending, and other demographic and socioeconomic characteristics. The sample size is about 200,000 people nationally, with over 2,300 in Kentucky in 2014. The CPS is available as a public use data file which allows for the creation of custom variables.

The CPS income and health insurance questions were recently redesigned to improve the quality of data reported. Consequently, estimates of income and health insurance from 2012 and before should not be compared with more recent estimates. This is why SHADAC only provides baseline estimates for 2013 for the underinsurance indicator, which is calculated using income data from the CPS. In fact, 2013 was a transition year for the set of income questions, as both the new and old questions were concurrently asked. However, for this report, SHADAC used a Census Bureau file that bridges the old and new income questions to update our 2013 baseline estimate.

SHADAC used data from the CPS to estimate percent underinsured and median out-of-pocket spending. The definition for underinsurance used in this report is an individual living in a family that has spent over 10% of its total income on healthcare expenses.

### *Medical Expenditure Panel Survey – Insurance Component (2012, 2014)*

The Medical Expenditure Panel Survey – Insurance Component (MEPS-IC) is a federal survey sponsored by the U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality. The MEPS-IC collects information from public and private employers about the health insurance plans they offer to employees, including benefits, costs, and other characteristics. The sample size in 2014 was over 41,000 businesses at the national level, and over 650 in Kentucky. Summary reports with detailed state-level

tables for private sector employers are released in July of each year following the survey year. Unlike with the ACS and CPS, a public use data file is not available from the MEPS-IC.

For this report, SHADAC used data from the MEPS-IC to estimate employer offer rates and premiums. We accessed these estimates from the [MEPS-IC](#) web site.

### ***National Health Interview Survey (2012, 2013)***

The National Health Interview Survey (NHIS) is a federal survey sponsored by the Centers for Disease Control & Prevention (CDC) and the National Center for Health Statistics (NCHS). The NHIS asks about health insurance coverage, health care utilization and access, health conditions and behaviors, and general health status, as well as many demographic and socioeconomic characteristics. It has a total sample of more than 104,000 in 2013 (the NHIS does not release state-level sample sizes).

Summary reports, with state estimates for the 43 largest states of types of coverage (including Kentucky) are released six months after data collection. Data files with state-level and other geographic identifiers can be accessed only through a Census Research Data Center (RDC). Access to data in RDC is only allowed after a proposal has been submitted and approved by NCHS and only to researchers who have Special Sworn Status. SHADAC has an approved project for accessing this restricted data in the RDC for the purpose of posting estimates on our [Data Center](#). Changing variable definitions or adding variables means amending our annual proposal to the RDC. SHADAC used data from the NHIS to estimate nine different measures in the cost and access domains. Measures within the cost domain include *trouble paying medical bills, delayed needed care due to cost, and went without needed care due to cost*. For the access domain, the measures include: *usual source of care, provider visit in the last year, emergency department visit in the last year, found doctor when needed, told provider accepts insurance, and changes to medical drug use due to cost*. Our plan is to add an additional measure *wait time to see a primary care provider*. SHADAC has received approval from the RDC to investigate if this is possible, but the release of these estimates is contingent on final determination of whether they meet RDC guidelines for disclosure of restricted data.

The *changes to drugs due to cost* measure includes asking the doctor for cheaper medications, delaying refills, taking less medication than prescribed, skipping dosages, using alternative therapies, or buying medications out of the country within the past year. The *trou-*

*ble paying off medical bills* measure includes people who are paying off medical bills within the past year.

### ***Behavioral Risk Factor Surveillance System (2012, 2013, 2014)***

The Behavioral Risk Factor Surveillance System (BRFSS) is a state-based survey sponsored by the CDC and the Kentucky Cabinet for Health and Family Services. The BRFSS survey asks about health conditions, risk behaviors, preventive health practices, access to health care, and health insurance coverage. State-level results are available from the CDC for all states. Kentucky BRFSS data are analyzed at the Area Development District (ADD) level for the state's 15 ADDs. The sample size for each ADD is 500 completed surveys, to ensure an adequate sample size for analysis.

SHADAC has changed the way we obtained the BRFSS since the baseline report, opting to access and analyze the public use data for all estimates. To maintain consistency and comparability, we have updated our baseline estimates, as well. *Adult obesity, adult health status, and prevalence of chronic diseases measures in the health outcomes domain, as well as colorectal cancer screenings and no dental visit in the last year* were obtained from this source.

The preventive care utilization measures report the following: the percentage of adults who have had their blood cholesterol checked within the last 5 years, the percentage of adults who have had a tetanus shot (either a Tdap or not) since 2005, and the percentage of adults age 50 to 75 who have met recommendations by the U.S. Preventive Services Task Force for colorectal cancer screening. We approximate the colorectal cancer screening recommendations by estimating the percentage of eligible individuals who report a fecal blood test in the past year, or a sigmoidoscopy or colonoscopy in the past 10 years. The *prevalence of chronic diseases* measure shows the percentage of adults who report having one or more of the following chronic conditions: diabetes, cardiovascular disease, heart attack, stroke and asthma.

### ***National Survey on Drug Use and Health (2011, 2012, 2013, 2014)***

The National Survey on Drug Use and Health (NSDUH) is sponsored by the U.S. Department of Health and Human Services' Substance Abuse and Mental Health Services Administration. The NSDUH collects information on the prevalence of tobacco, alcohol, and drug use, as well as mental health and treatment-related indicators among Americans ages 12 years and older.

The Substance Abuse and Mental Health Services administration creates the estimates by pooling two years of data. The estimates in this report are from the time period 2011/2012 and 2013/2014. For the previous baseline report, we did not test for significance because the necessary data were not available; however, for this report SHADAC performed significance tests by approximating standard errors from NSDUH-reported confidence intervals. By employing this method, we are slightly less likely to find that a difference is statistically significant. The four measures included here under the access domain are: *serious mental illness, any mental illness, needed but did not receive illicit drug abuse treatment, and needed but did not receive alcohol abuse treatment*. Estimates on the prevalence of mental illness are based on people aged 18 or older. Estimates on treatment of substance use provide information for people aged 12 or older.

### **Web-based Injury Statistics Query and Reporting System**

[The Web-based Injury Statistics Query and Reporting System \(WISQARS™\)](#) is the CDC's public-use database of information on injury, violent death, and cost of injury in the United States. The database pulls in data from the National Vital Statistics System, the National Electronic Injury Surveillance System, the Census Bureau, and other sources. Users can create custom reports, charts, and maps using the built-in tools on the site, and breakouts are available by state, gender, race, and age. The tool does not provide information on standard errors and statistical testing of the differences between estimates for Kentucky and the U.S. was not possible.

We use WISQARS to obtain information on premature deaths, which is an indicator that reports the years of potential life lost (YPLL) before age 75, using the YPLL Age-Adjusted Rate and 2000 as the standard year.

### **National Vital Statistics Reports**

[The National Vital Statistics Report](#), disseminated by the CDC, contains data on low birth weight births, by race and Hispanic origin of the mother in each U.S. state. Low birth weight is categorized as weighing less than 2,500 grams (5 lb. 8 oz.). Because this is not a survey (the system records all known occurrences of low birth weight, and reports are released annually), there is no sampling or sample size and no need for statistical testing of differences.

### **Report Estimate Considerations**

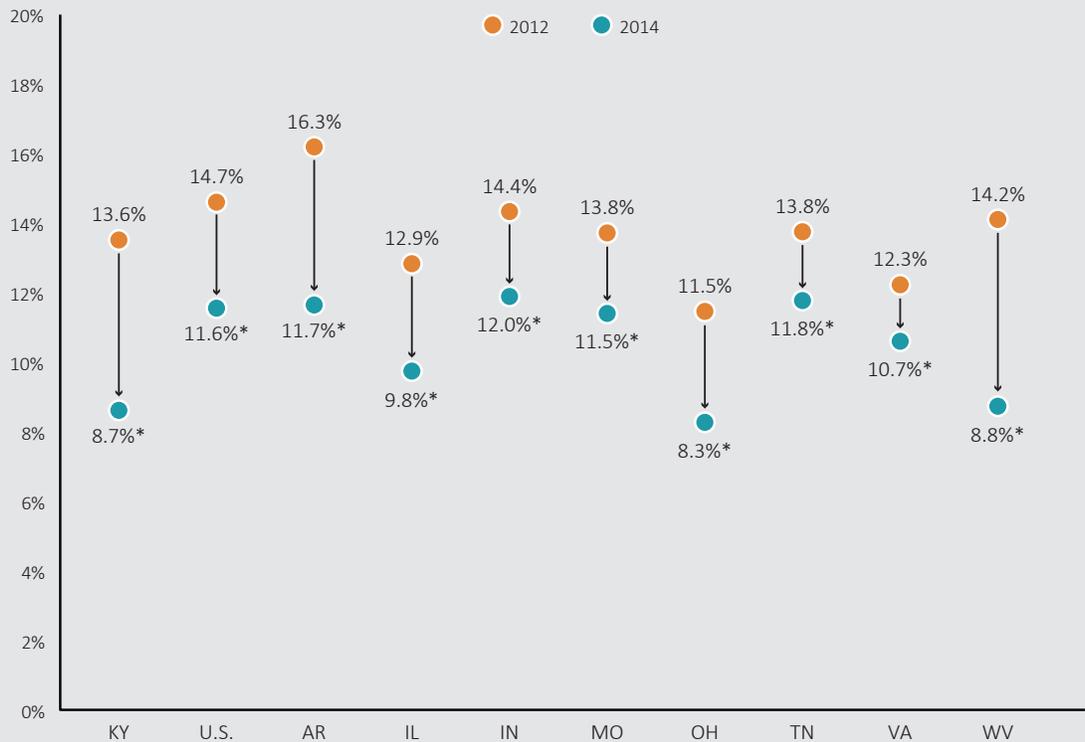
Suppression rules depended on the source of the data and the availability of measures of uncertainty and/or sample sizes. In the ACS and CPS where we used public use files, we suppressed data when the relative standard error was greater than 30%. Estimates from the NHIS are suppressed if either the number of sample cases was too small or the relative standard error was greater than 30%. In cases where standard errors were not available, we did not suppress any estimates. Lastly, we did not include some trend estimates due to recent changes in the questions of some federal surveys that made it difficult to compare data points over time (e.g., the CPS).

It should be noted that we lacked the necessary information to perform an "overlap adjustment" to our statistical tests. Since we are comparing Kentucky's estimates to national estimates (which include Kentuckians), the proportion of Kentuckians in the population considered in the estimate should be taken into account. However, this specific information was not available for most estimates. By not conducting an overlap adjustment we are slightly less likely to report that a difference is statistically significant.

## V. APPENDIX II: ADDITIONAL CHARTS

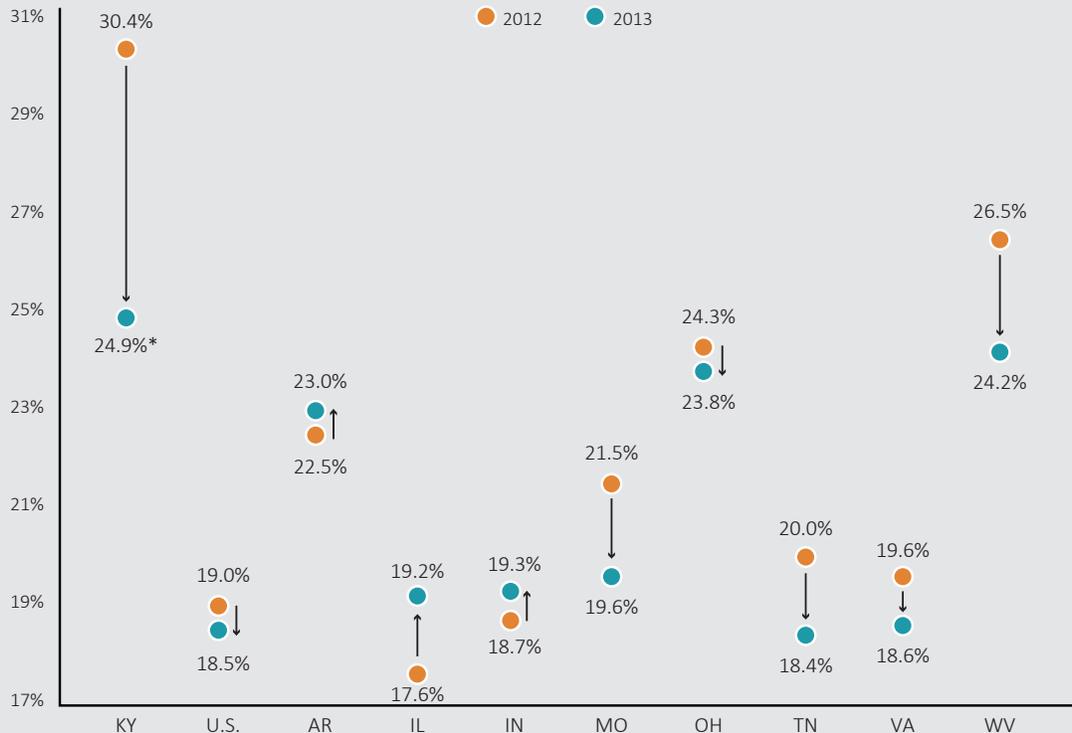
The graphs in this appendix supplement those in the main report that compare Kentucky on selected indicators against the U.S. and neighboring states. Unlike the graphs in the main report, which indicate whether the comparison states differ significantly from Kentucky for the most-recent time period (i.e., 2013 or 2014), the graphs in this appendix examine whether states have experienced significant changes over time. For example, in interpreting Appendix Figure 1, the asterisk (\*) on the Arkansas plot shows that the state has experienced a statistically significant decline in uninsurance between 2012 and 2014.

**APPENDIX FIGURE 1:**  
Uninsurance in Kentucky,  
U.S. and Neighbor States,  
2012-2014 (all ages)



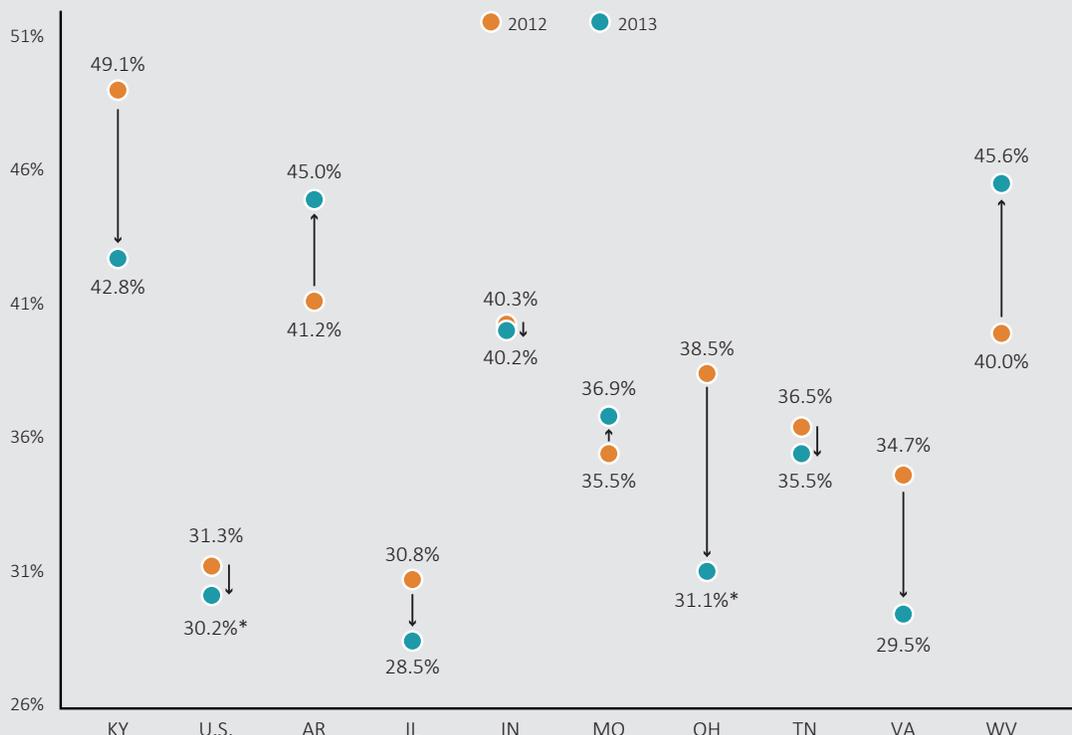
\*Difference is statistically significant within the state (e.g., Arkansas 2012 estimate vs. Arkansas 2014 estimate) at the 95% level. Source: SHADAC analysis of the non-institutional population in the 2012 and 2014 ACS using the Public Use Microdata Sample Files.

### APPENDIX 2



**APPENDIX FIGURE 2:** Emergency Department Visits During the Past Year in Kentucky, U.S. and Neighbor States, 2012-2013 (all ages)

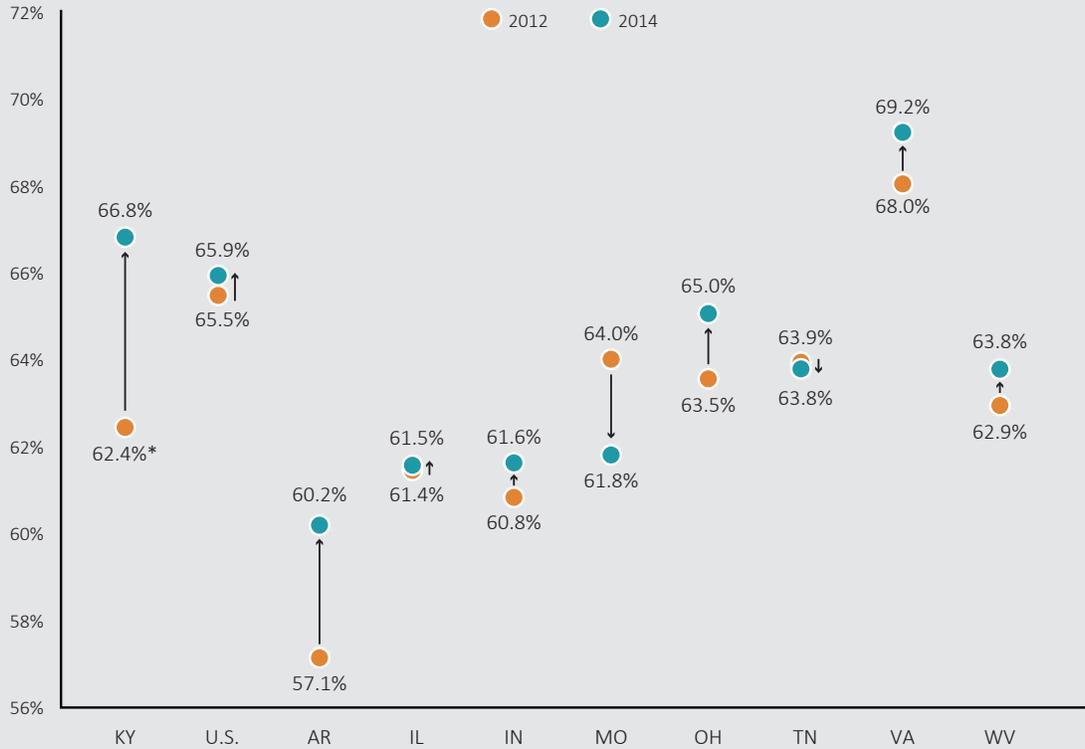
\*Difference is statistically significant within the state (e.g., Arkansas 2012 estimate vs. Arkansas 2013 estimate) at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center.



**APPENDIX FIGURE 3:** Trouble Paying Medical Bills in Kentucky, U.S. and Neighbor States, 2012-2013 (all ages)

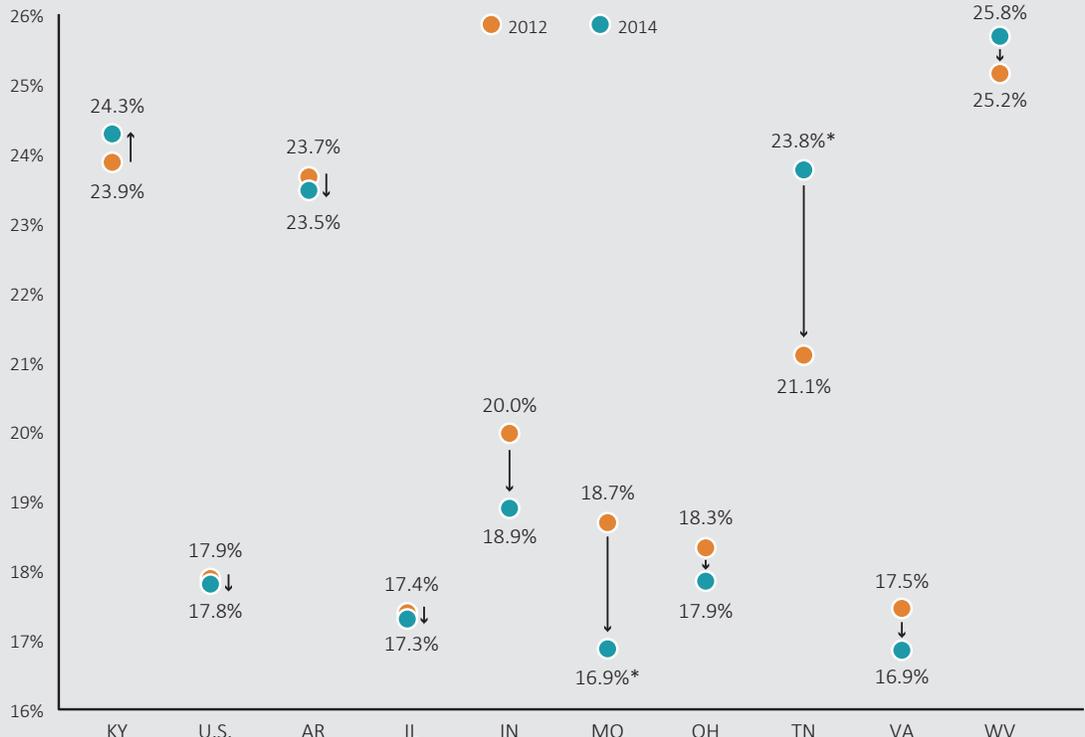
\*Difference is statistically significant within the state (e.g., Arkansas 2012 estimate vs. Arkansas 2013 estimate) at the 95% level. Source: SHADAC analysis of the civilian non-institutional population in the 2012 and 2013 NHIS using the SHADAC Data Center. The estimate reports the percentage of people who had trouble paying off medical bills in the last year or were currently paying off medical bills.

**APPENDIX FIGURE 4:**  
Colorectal Cancer  
Screenings in Kentucky,  
U.S. and Neighbor States,  
2012-2014 (ages 50-75)



\*Difference is statistically significant within the state (e.g., Arkansas 2012 estimate vs. Arkansas 2014 estimate) at the 95% level. Source: Estimates are based on SHADAC analysis of 2012 and 2014 BRFSS survey data of the percentage of adults who met U.S. Preventive Services Task Force colorectal cancer screening recommendations.

**APPENDIX FIGURE 5:**  
Poor/Fair Health in  
Kentucky, U.S. and  
Neighbor States,  
2012-2014 (ages 18+)



\*Difference is statistically significant within the state (e.g., Arkansas 2012 estimate vs. Arkansas 2014 estimate) at the 95% level. Source: SHADAC analysis of 2012 and 2014 BRFSS survey data of the percentage of adults who self-report having poor or fair health.

VI. END NOTES

- <sup>1</sup> Though Arkansas is not a Kentucky border state, we include it because it is often compared to Kentucky due to similarities in health status, demographics, and state policies.
- <sup>2</sup> Institute of Medicine. (2009). America's uninsured crisis: Consequences for health and health care. (Report Brief). Available at: <http://iom.nationalacademies.org/~media/Files/Report%20Files/2009/Americas-Uninsured-Crisis-Consequences-for-Health-and-Health-Care/Americas%20Uninsured%20Crisis%202009%20Report%20Brief.pdf>
- <sup>3</sup> State Health Access Data Assistance Center (SHADAC). (2013). State-level Trends in Employer-sponsored Health Insurance: A State-by-state Analysis. Available at: [http://www.shadac.org/sites/default/files/Old\\_files/shadac/publications/ESI\\_Report\\_2013.pdf](http://www.shadac.org/sites/default/files/Old_files/shadac/publications/ESI_Report_2013.pdf)
- <sup>4</sup> The state-comparison charts in this report indicate which of Kentucky's neighboring states have opted to expand their Medicaid programs as part of ACA (Arkansas, Illinois, Indiana, Ohio and West Virginia). The only one of these states that did not implement its expansion in 2014 was Indiana, which expanded its Medicaid program via a Section 1115 waiver in 2015. This is important to note because all of the data presented in this report are from 2014 or earlier—before Indiana's Medicaid expansion.
- <sup>5</sup> In 2014, for a 1-person household, 100% of the FPG was \$11,670 and 138% of FPG was \$16,105. The categories are adjusted for family size; in 2014, 100% of the FPG for a 4-person household was \$23,850 and 138% of FPG was \$32,913.
- <sup>6</sup> U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation. (2014). 2014 HHS Poverty Guidelines: One Version of the U.S. Federal Poverty Measure. Available at: <https://aspe.hhs.gov/2014-poverty-guidelines>
- <sup>7</sup> SHADAC. (Undated). University of Minnesota. Measuring the Adequacy of Coverage or Underinsurance. Available at: <http://www.shadac.org/files/MeasureUnderinsurance.pdf>
- <sup>8</sup> Blewett, L., Ward, A., & Beebe, T. (2006). How much health insurance is enough? Revisiting the concept of underinsurance. *Medical Care Research and Review*, 63(6)
- <sup>9</sup> SHADAC uses 10% of annual household income spent on health care based on the definition used by the National Center for Health Statistics (NCHS)
- <sup>10</sup> Agency for Healthcare Research and Quality. (2010). National Healthcare Quality Report. Chapter 9. Access to Healthcare. Available at: <http://archive.ahrq.gov/research/findings/nhqrdr/nhqr10/Chap9.html>
- <sup>11</sup> The underinsurance indicator uses 2013 as the baseline year instead 2012. This is because the U.S. Census Bureau implemented new income questions starting with the 2013 CPS, so 2012 underinsurance estimates would not be comparable to later years.
- <sup>12</sup> Institute of Medicine, Committee on Monitoring Access to Personal Health Care Services. (1993). *Access to Health Care in America*. Washington, DC. National Academy Press.
- <sup>13</sup> Call, K., McAlpine, D., Garcia, C., Shippee, N., Beebe, T., Adeniyi, T., & Shippee, T. (2014). Barriers to Care in an Ethnically Diverse Publicly Insured Population: Is Health Care Reform Enough? *Medical Care*, 52(8)
- <sup>14</sup> SHADAC is investigating the feasibility of including another access indicator, wait time to see a primary care provider, in future reports. For more information on this, see the section on the National Health Interview Survey in Appendix I.
- <sup>15</sup> For the metrics from the NSDUH, the data are pooled over 2 years, so the 2014 estimate actually represents 2013 and 2014.
- <sup>16</sup> U.S. Department of Health and Human Services, Assistant Secretary for Planning and Evaluation. (Undated). Health System Measurement Project: Percentage of People Who Have a Specific Source of Ongoing Medical Care. Available at: <https://healthmeasures.aspe.hhs.gov/measure/1>
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- <sup>18</sup> Agency for Healthcare Research and Quality. (2014). HCUP Statistical Brief: Overview of Emergency Department Visits in the United States, 2011. Available at: <https://www.hcup-us.ahrq.gov/reports/statbriefs/sb174-Emergency-Department-Visits-Overview.pdf>

- <sup>19</sup> Institute of Medicine. (2011). Advancing Oral Health in America. Available at <http://www.hrsa.gov/public-health/clinical/oralhealth/advancingoralhealth.pdf>
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- <sup>21</sup> National Association of State Mental Health Program Directors Medical Directors Council. (2006.) Morbidity and Mortality in People with Serious Mental Illness. Available at <http://www.nasmhpd.org/sites/default/files/Mortality%20and%20Morbidity%20Final%20Report%208.18.08.pdf>
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- <sup>23</sup> Kentucky Office of State Budget Director, Governor's Office for Policy and Management. (2016). Commonwealth of Kentucky 2016-2018 Executive Budget: Budget in Brief. Accessible at: <http://osbd.ky.gov/Publications/Documents/Budget%20Documents/2016-2018%20Executive%20Budget%20Recommendation/Budget%20in%20Brief.pdf>
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- <sup>28</sup> U.S. Census Bureau (2014). Percent of people below poverty level in the past 12 months. American Fact Finder. 2014 American Community Survey 1-year Estimates. Available at: <https://www.census.gov/programs-surveys/acs/technical-documentation/table-and-geography-changes/2014/1-year.html>
- <sup>29</sup> U.S. Centers for Disease Control and Prevention. (2010). Is Low Birthweight a Health Problem? Available at: [http://www.cdc.gov/pednss/how\\_to/interpret\\_data/case\\_studies/low\\_birthweight/what.htm](http://www.cdc.gov/pednss/how_to/interpret_data/case_studies/low_birthweight/what.htm)
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- <sup>34</sup> U.S. Department of Health and Human Services, Office of Disease Prevention and Health Promotion. (2015). Healthy People 2020: Foundational Health Measures: Determinants of Health. Available at: <http://www.healthypeople.gov/2020/about/foundation-health-measures/Determinants-of-Health>
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END NOTES

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- <sup>40</sup> The drop in Kentucky's uninsurance rate from 2012 to 2014 was significantly larger than those in all but two neighboring states. Arkansas and West Virginia experienced declines in uninsurance that were not statistically different than the drop in Kentucky.
- <sup>41</sup> SHADAC. (2015). "Health Insurance Coverage in 2014: Estimates from the American Community Survey (ACS)." Accessible at: <http://www.shadac.org/news/infographic-health-insurance-coverage-2014-estimates-ac>



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