The COMMONWEALTH FUND

# Rising TO THE Challenge

## The Commonwealth Fund Scorecard on Local Health System Performance

2016 Edition

David C. Radley, Douglas McCarthy, and Susan L. Hayes

**July 2016**

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**ABSTRACT**

The 2016 edition of The Commonwealth Fund's *Scorecard on Local Health System Performance* finds continuing wide variation in health and health care across U.S. communities. In its assessment of 36 indicators of access, quality, avoidable hospital use, costs, and outcomes, we see that health care improved more than it worsened between 2011 and 2014 in nearly all 306 local areas. Gains in access to care, quality, and efficiency often corresponded to implementation of public policies, such as the Affordable Care Act, and to quality improvement collaborations. But lack of progress on many indicators suggests further efforts are needed. Notably, mortality rates were mostly unchanged, and obesity rates rose in 111 of 306 localities. Health system performance is often linked to resource availability, with areas that have a high proportion of low-income residents tending to rank lower. Exceptions to this suggest, however, that local improvement efforts can succeed despite socioeconomic challenges.

Support for this research was provided by The Commonwealth Fund. The views presented here are those of the authors and not necessarily those of The Commonwealth Fund or its directors, officers, or staff. To learn more about new publications when they become available, visit the Fund's website and register to receive email alerts. Commonwealth Fund pub. 1885.

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# ABOUT THE AUTHORS

David C. Radley, Ph.D., M.P.H., is senior scientist for The Commonwealth Fund's Tracking Health System Performance initiative, working on the scorecard project. Dr. Radley and his team develop national, state, and substate regional analyses on health care system performance and related insurance and care system market structure analyses. Previously, he was associate in domestic health policy for Abt Associates, with responsibility for a number of projects related to measuring long-term care quality and evaluating health information technology initiatives. Dr. Radley received his Ph.D. in health policy from the Dartmouth Institute for Health Policy and Clinical Practice, and holds a B.A. from Syracuse University and an M.P.H. from Yale University.

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Susan L. Hayes, M.P.A., is senior research associate for The Commonwealth Fund's Tracking Health System Performance initiative. In this role she supports the scorecard project, actively participating in the selection/development, research, and analysis of national, state, local, and special-population-level health system performance measures, and coauthoring scorecard reports and related publications. Ms. Hayes holds an M.P.A. from New York University's Wagner School of Public Service, where she won the Martin Dworkis Memorial Award for academic achievement and public service. She graduated from Dartmouth College with an A.B. in English and began a distinguished career in journalism, working as an editorial assistant at *PC Magazine* and a senior editor at *National Geographic Kids* and later at *Woman's Day* magazine. Following that period, Ms. Hayes was a freelance health writer and a contributing editor to *Parent & Child* magazine and cowrote a book on raising bilingual children with a pediatrician at Tufts Medical Center.

# ACKNOWLEDGMENTS

We owe our sincere appreciation to all of the researchers who developed indicators and conducted data analyses for this *Scorecard*. These include: Michael E. Chernew, Ph.D., and Andrew Hicks, M.S., Department of Health Care Policy at Harvard Medical School; Sherry Glied, Ph.D., and Claudia Solís-Román, New York University Robert F. Wagner Graduate School of Public Service; Ashish Jha, M.D., M.P.H., and Jie Zheng, Ph.D., Harvard School of Public Health; Vincent Mor, Ph.D., Denise Tyler, Ph.D., and Zhanlian Feng, Ph.D., Brown University; and Yuting Zhang, Ph.D., and Seo Hyon Baik, Ph.D., University of Pittsburgh.

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Finally, the authors wish to acknowledge Westat for its support of the research unit, which enabled the analysis and development of the *Scorecard* report.

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*Editorial support was provided by Chris Hollander.*

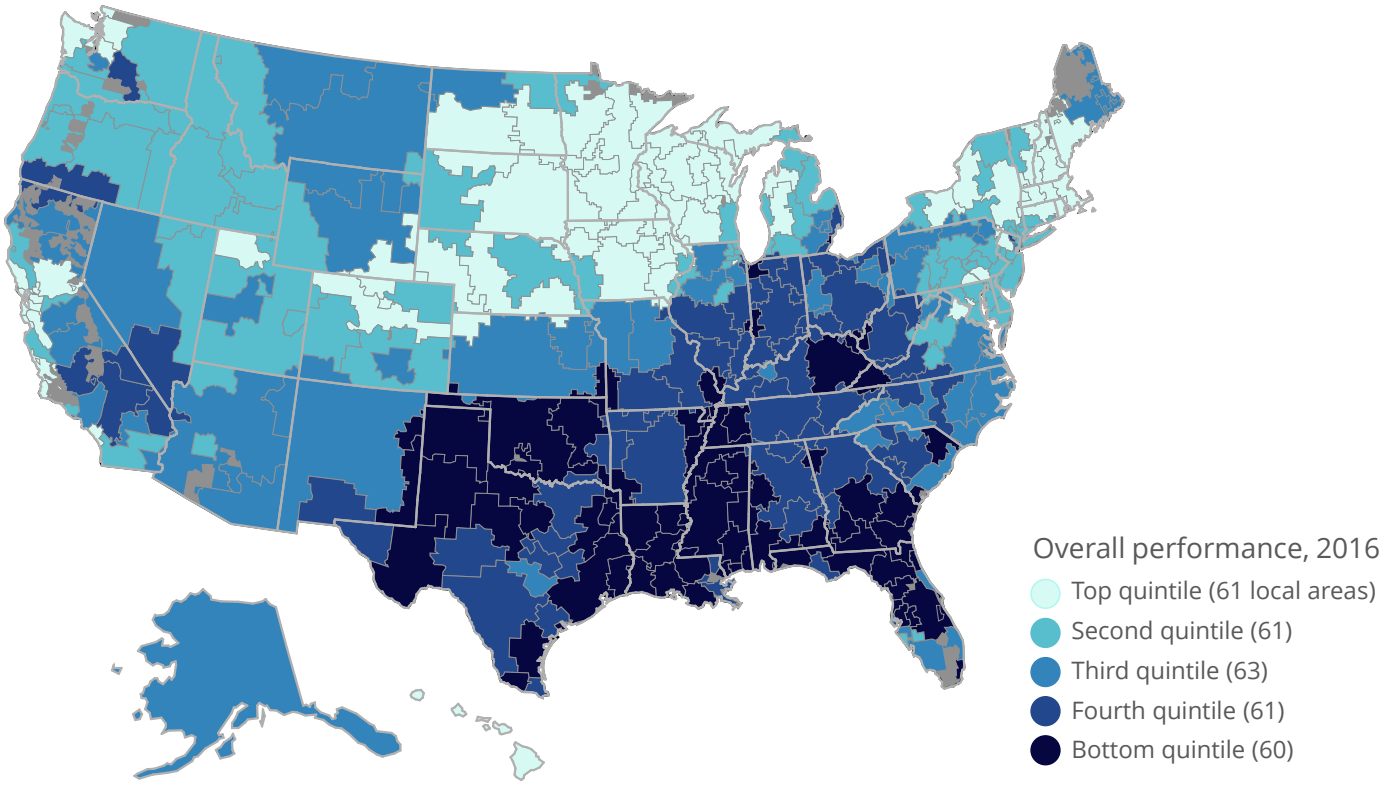
# Highlights from the Scorecard

This 2016 edition of The Commonwealth Fund's *Scorecard on Local Health System Performance* assesses the state of health care in more than 300 U.S. communities from 2011 through 2014, a period when the Affordable Care Act was being implemented across the country. In comparing health care access, quality, avoidable hospital use, costs of care, and health outcomes, the *Scorecard* shows that many U.S. communities experienced improvements: fewer uninsured residents, better quality of care in doctors' offices and hospitals, more efficient use of hospitals, and fewer deaths from treatable cancers, among other gains. Still, the persistence of widespread differences between areas is a reminder that many local health systems have yet to reach the potential attained elsewhere in the country.

Using the most recent data available, the *Scorecard* ranks 306 regional health care markets known as "hospital referral regions" on four main dimensions of performance encompassing 36 measures. Top-ranked regions in Hawaii, the Upper Midwest, New England, and the San Francisco Bay area have been performance leaders over time, and they offer achievable improvement benchmarks for policymakers, health system leaders, and community stakeholders (Exhibit 1). (See Scorecard Methods and the Appendix for a complete description of how the *Scorecard* was developed and detail on indicators and measurement periods.)

Exhibit 1

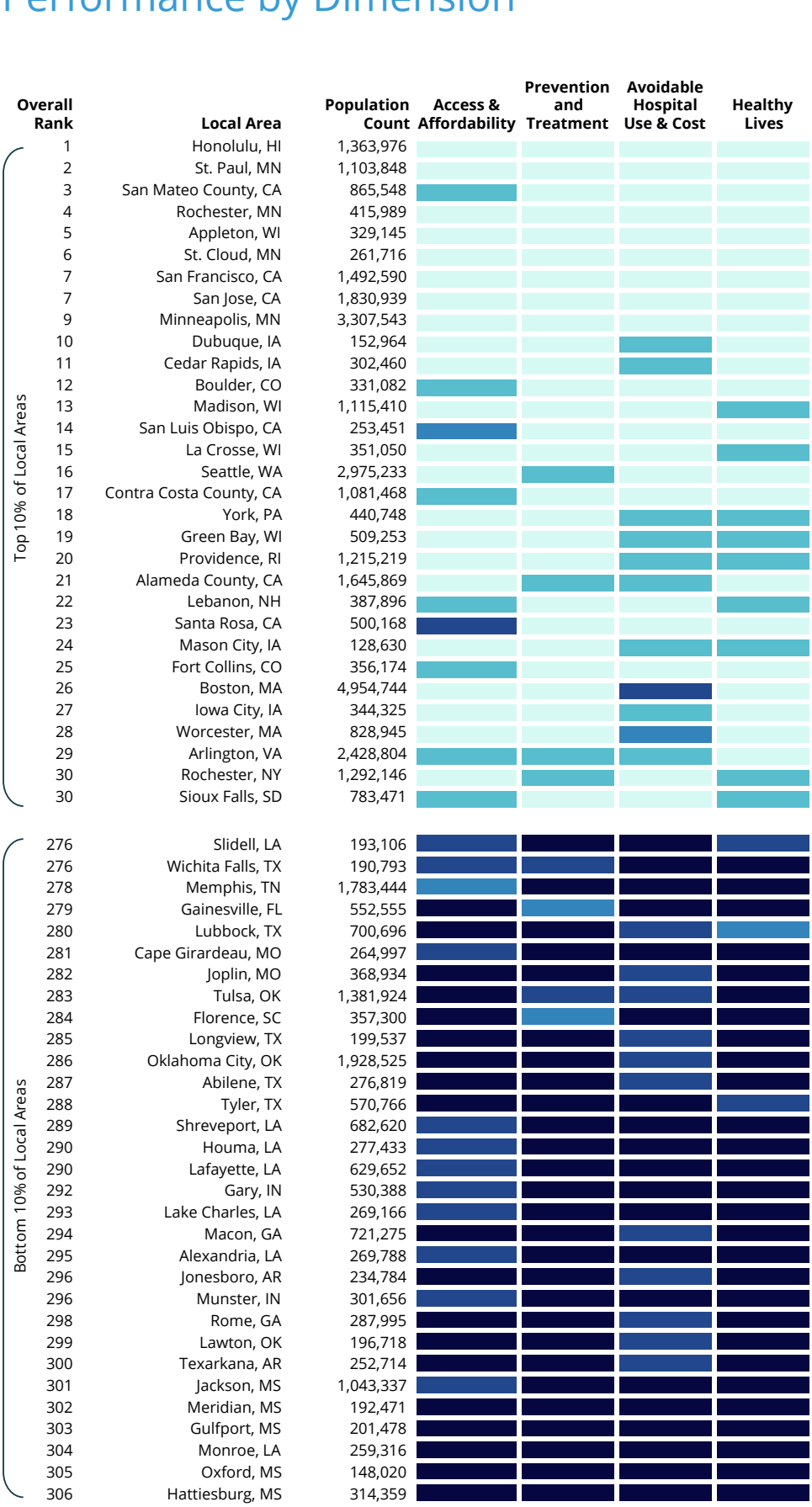
## Overall Local Health System Performance: Scorecard Ranking, 2016




Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

Exhibit 2

# Performance by Dimension




| | Overall Rank | Local Area | Population Count | Access & Affordability | Prevention and Treatment | Avoidable Hospital Use & Cost | Healthy Lives |
|---|---|---|---|---|---|---|---|
| Top 10% of Local Areas | 1 | Honolulu, HI | 1,363,976 | | | | |
| | 2 | St. Paul, MN | 1,103,848 | | | | |
| | 3 | San Mateo County, CA | 865,548 | | | | |
| | 4 | Rochester, MN | 415,989 | | | | |
| | 5 | Appleton, WI | 329,145 | | | | |
| | 6 | St. Cloud, MN | 261,716 | | | | |
| | 7 | San Francisco, CA | 1,492,590 | | | | |
| | 7 | San Jose, CA | 1,830,939 | | | | |
| | 9 | Minneapolis, MN | 3,307,543 | | | | |
| | 10 | Dubuque, IA | 152,964 | | | | |
| | 11 | Cedar Rapids, IA | 302,460 | | | | |
| | 12 | Boulder, CO | 331,082 | | | | |
| | 13 | Madison, WI | 1,115,410 | | | | |
| | 14 | San Luis Obispo, CA | 253,451 | | | | |
| | 15 | La Crosse, WI | 351,050 | | | | |
| | 16 | Seattle, WA | 2,975,233 | | | | |
| | 17 | Contra Costa County, CA | 1,081,468 | | | | |
| | 18 | York, PA | 440,748 | | | | |
| | 19 | Green Bay, WI | 509,253 | | | | |
| | 20 | Providence, RI | 1,215,219 | | | | |
| | 21 | Alameda County, CA | 1,645,869 | | | | |
| | 22 | Lebanon, NH | 387,896 | | | | |
| | 23 | Santa Rosa, CA | 500,168 | | | | |
| | 24 | Mason City, IA | 128,630 | | | | |
| | 25 | Fort Collins, CO | 356,174 | | | | |
| | 26 | Boston, MA | 4,954,744 | | | | |
| | 27 | Iowa City, IA | 344,325 | | | | |
| | 28 | Worcester, MA | 828,945 | | | | |
| | 29 | Arlington, VA | 2,428,804 | | | | |
| | 30 | Rochester, NY | 1,292,146 | | | | |
| | 30 | Sioux Falls, SD | 783,471 | | | | |
| Bottom 10% of Local Areas | 276 | Slidell, LA | 193,106 | | | | |
| | 276 | Wichita Falls, TX | 190,793 | | | | |
| | 278 | Memphis, TN | 1,783,444 | | | | |
| | 279 | Gainesville, FL | 552,555 | | | | |
| | 280 | Lubbock, TX | 700,696 | | | | |
| | 281 | Cape Girardeau, MO | 264,997 | | | | |
| | 282 | Joplin, MO | 368,934 | | | | |
| | 283 | Tulsa, OK | 1,381,924 | | | | |
| | 284 | Florence, SC | 357,300 | | | | |
| | 285 | Longview, TX | 199,537 | | | | |
| | 286 | Oklahoma City, OK | 1,928,525 | | | | |
| | 287 | Abilene, TX | 276,819 | | | | |
| | 288 | Tyler, TX | 570,766 | | | | |
| | 289 | Shreveport, LA | 682,620 | | | | |
| | 290 | Houma, LA | 277,433 | | | | |
| | 290 | Lafayette, LA | 629,652 | | | | |
| | 292 | Gary, IN | 530,388 | | | | |
| | 293 | Lake Charles, LA | 269,166 | | | | |
| | 294 | Macon, GA | 721,275 | | | | |
| | 295 | Alexandria, LA | 269,788 | | | | |
| | 296 | Jonesboro, AR | 234,784 | | | | |
| | 296 | Munster, IN | 301,656 | | | | |
| | 298 | Rome, GA | 287,995 | | | | |
| | 299 | Lawton, OK | 196,718 | | | | |
| | 300 | Texarkana, AR | 252,714 | | | | |
| | 301 | Jackson, MS | 1,043,337 | | | | |
| | 302 | Meridian, MS | 192,471 | | | | |
| | 303 | Gulfport, MS | 201,478 | | | | |
| | 304 | Monroe, LA | 259,316 | | | | |
| | 305 | Oxford, MS | 148,020 | | | | |
| | 306 | Hattiesburg, MS | 314,359 | | | | |

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

## WHAT IS A HOSPITAL REFERRAL REGION?

Hospital referral regions (HRRs) represent regional health care markets across the United States. There are 306 unique HRRs with at least one hospital in which complex surgeries are performed. Names of HRRs reflect the location (city or town) where the referral hospital is physically located. Because the regions are meant to represent travel and provider referral patterns, they do not align to political boundaries and sometimes even cross state borders. HRRs, developed by the Dartmouth Atlas of Health Care,* are widely used in health services research and policy analysis.**

* Appendix on the Geography of Health Care in the United States, Abstracted from the 1996 edition of the Dartmouth Atlas of Health Care, http://www.dartmouthatlas.org/downloads/methods/geogappdx.pdf.

** https://www.nationalacademies.org/hmd/Activities/HealthServices/GeographicVariation.aspx; MedPAC, "Report to the Congress: Variation and Innovation in Medicare," March 2003; GAO, "Report to Congressional Requesters—Health Care Price Transparency: Meaningful Price Information Is Difficult for Consumers to Obtain Prior to Receiving Care (#GAO-11-791)," Sept. 2011; CBO, "Geographic Variation in Health Care Spending," Feb. 2008.

## A NOTE ON THE LOCAL SCORECARD SERIES

This 2016 edition of The Commonwealth Fund's *Scorecard on Local Health System Performance* is the second in the series. The first was released in 2012.

The 2016 *Scorecard* measures changes in local area performance over recent years for which data are available, generally 2011 through 2014 for most indicators. Although many indicators reported here overlap with those reported in the 2012 edition, changes in underlying data sources or measure definitions required that we rebase each performance indicator. Thus, this *Scorecard* should not be interpreted as a strict update of the 2012 edition.

See Scorecard Methods and the Appendix for further detail, including a complete description of each performance indicator. Region-specific data are available online.

In this report, we examine changes in local performance on the 33 indicators we were able to track over time.* The good news: in nearly all U.S. communities, performance in recent years improved more often than it worsened, showing that progress is possible with supportive policies and local action. Still, in many places there was little or no meaningful change on many of our indicators of health and health care. As a consequence, only 14 U.S. localities improved on a majority of the *Scorecard*'s indicators (17 or more).

Continuing geographic variability in health and health care may well reflect differences in state policies whose effects "trickle down" to local areas. Differences across communities also may stem from socioeconomic factors and the availability of local resources as well as local norms and practices. (Learn more about how regional collaboration and other factors can influence local health system performance.) These findings, as well as a recently reported uptick in U.S. mortality in 2015, suggest that to ensure a healthy and productive future for all Americans, the nation needs to make greater investments to address the social determinants of health, including economic opportunity, housing, nutrition, and environmental conditions, as well as to meet mental and behavioral health needs.[1]

## MEASURING CHANGE

The *Scorecard* evaluates change over time for 33 of the 36 indicators by identifying those instances of improvement or worsening that can be considered meaningful. We considered a change to be meaningful if it was at least 0.5 standard deviations larger than the indicators' observed rates between the two time points. Local areas with indicator rate changes less than 0.5 standard deviations are considered to have had exhibited little or no change.

* For methodological reasons, trends for three performance indicators could not be calculated.

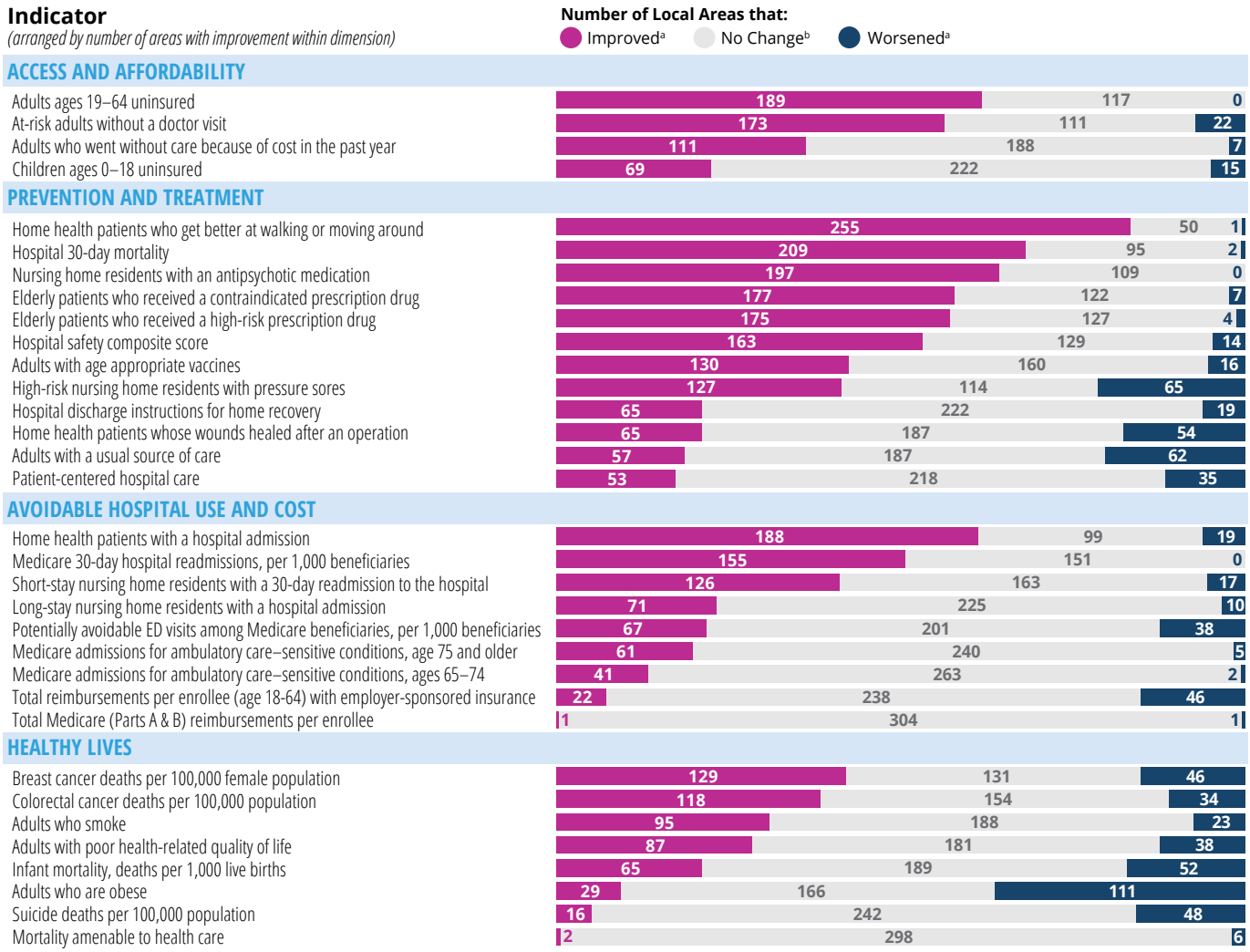
# More Improvement Than Decline

In nearly all local areas (302 of 306), health care improved more than it worsened, according to the 2016 *Scorecard*. This means that in many places across the country, previously uninsured people gained health insurance—in large part because of the Affordable Care Act's coverage expansions—and more people reported they were able to get needed care. In addition, many people received higher-quality care, and fewer were readmitted to the hospital, than just a few years ago.

More local areas improved than worsened on 27 of the 33 indicators that could be tracked over time and the majority of areas made meaningful gains on 10 of these (Exhibit 3). There were widespread reductions in uninsured rates and in the 30-day mortality rate following a hospital stay, as well as improvements in quality of care for nursing home residents. The share of home health patients whose mobility improved between 2012 and 2014 went up in more communities (255 of 306) than did any other measure.

Exhibit 3

## Overall Improvement by Indicator




Notes: Only *Scorecard* indicators with trends are shown. Trend data generally reflect the three-year period ending in 2014 or 2015—refer to Appendix for additional detail.
[a] Improvement or worsening refers to a change between the baseline and current time periods of at least 0.5 standard deviations.
[b] Includes the number of local areas with little or no change or without sufficient data for this subpopulation to assess change over time.
Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

Akron, Ohio, and Stockton, Calif., stand out nationally for having each improved on more performance measures (19 of 33) than any other locality. An additional 12 regions improved on the majority of indicators (at least 17). (See box below to learn how Akron promotes better health through data and cross-sector collaboration.)

## Akron, Ohio
### Collaborating for Collective Impact

The Akron area of northeastern Ohio offers the perfect sandbox in which to experiment with ways to improve health, according to Donna Skoda, Summit County Health Commissioner. "It's big enough to have enough resources, and it's small enough to really make a difference," she says. An area of nearly 700,000, it is one of two U.S. hospital referral regions that improved on the most indicators in The Commonwealth Fund's 2016 *Scorecard on Local Health System Performance*. A few highlights:

- The Akron region has dramatically expanded access to health care. Summit County's uninsured rate is just 0.9 percent, following Ohio's Medicaid expansion under the Affordable Care Act (ACA) and the opening of the state's insurance marketplace. The insurance coverage expansion has likely helped more residents receive recommended care and may have helped reduce unnecessary hospital use and other drivers of health costs.
- Coaches from the Akron/Canton Area Agency on Aging are embedded at several local hospitals, possibly aiding in the region's drop in readmission rates. Through the ACA's Community-Based Care Transitions Program and other efforts, coaches assess patients' needs for chronic care management, home-delivered meals, transportation, and other types of support after discharge and then ensure they make safe transitions to their homes or other care settings.
- Health systems have also joined with a local medical school and university, a foundation, and the county public health department to launch an "accountable care community" focused on reducing chronic conditions such as diabetes, asthma, and hypertension.
- Seeking long-lasting health gains, leaders are building more sidewalks and bike lanes, improving access to nearby parks, and bringing healthy food choices to urban neighborhoods.

The Akron region's progress has been aided by its longstanding culture of collaboration, enshrined in its Quality of Life Project. Starting in 2003, all county departments and their nonprofit partners must agree on a set of shared goals and data to measure progress related to education, employment, and health. They also must explain how funds are being used to further these goals.

"Your health systems, health department, nonprofits, and government all have to work together to solve problems," Skoda says. "There's enough work to go around: we just need to figure out how to coordinate our efforts."

**Policy makes a difference.** Because it spans the period following the ACA's passage through implementation of the law's major insurance coverage expansions, the 2016 *Scorecard* may be capturing some of the early effects of the reforms. These and other changes in federal policy, along with the actions of state and local governments, as well as private initiatives, appear to have influenced local health system performance in several areas of the United States.

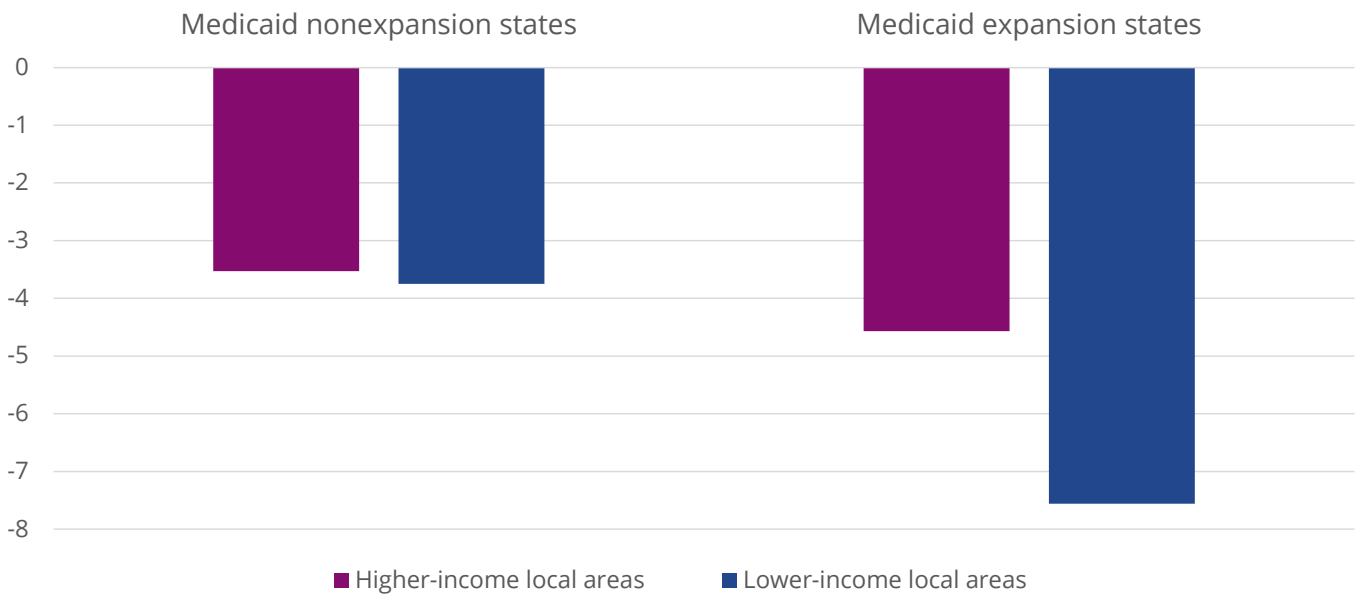
The ACA's major coverage expansions seem to have led to some of the most visible gains in performance. Between 2012 and 2014, the percentage of working-age adults (ages 19–64) without health insurance fell by four percentage points or more in 189 local areas. Several, including leader Jonesboro, Ark., saw double-digit declines in adult uninsured rates. In states that expanded Medicaid eligibility, communities that are disproportionately low-income realized much larger rate reductions than similar communities in states that did not expand Medicaid (Exhibit 4).

Another example of policy making a difference is Medicare's Hospital Readmission Reduction Program, created by the ACA. In October 2012, Medicare began financially penalizing hospitals with high rates of rehospitalization. Although readmission rates had been declining slowly in the years preceding the new policy, the pace of decline accelerated between 2013 and 2014 nationally (as documented by our 2015 State Scorecard). About half of local areas (155 of 306) saw meaningful reductions in 30-day readmissions (of at least 5.3 per 1,000 beneficiaries) between 2012 and 2014. The local areas making the most progress averaged a nearly 30 percent reduction.

Exhibit 4

# Larger Reductions in Uninsured Adults in Low-Income Communities in States That Expanded Medicaid

*Percentage-point reduction in uninsured adults between 2012 and 2014*




Notes: States' Medicaid expansion status as of January 1, 2014. Lower-income local areas are defined as those hospital referral regions (HRRs) where 40% or more of residents live in households with incomes below 200% of the Federal Poverty Level (FPL). Higher-income local areas are defined as those HRRs where fewer than 30% of residents live in households with incomes below 200% FPL.

Data: 2012 and 2014 American Community Survey Public Use Micro Sample (ACS PUMS).

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

Also noteworthy are national quality reporting initiatives, such as Medicare's Hospital Compare, Nursing Home Compare, and related websites, that shine a spotlight on treatment provided in hospital, postacute, and long-term care settings—all of which have seen clear gains in recent years. For instance, hospitals across the nation have made strides in providing evidence-based care for patients with heart attack, congestive heart failure, stroke, and pneumonia acquired outside the hospital—conditions for which 30-day hospital mortality rates have declined in more than two-thirds of local areas. And a majority of localities meaningfully improved on a composite measure of hospital safety that assesses such things as hospital-acquired infections and adverse events related to surgery or other procedures.

In general, ambulatory care quality did not improve to the same degree as did care provided in hospitals and other institutional settings. One exception was the reduction in many places in the percentage of elderly patients prescribed a "high-risk" medicine—for example, one with possibly dangerous side effects for older individuals—between 2011 and 2013. These improvements may largely be attributed to a U.S. Food and Drug Administration regulatory action in 2010 that led to the withdrawal of several medications from the market, a demonstration of the importance of postmarket safety surveillance.[2]

# Stark Geographic Differences

The health care experiences of people living in top-performing areas of the country can be dramatically different from those living in bottom-performing areas. On some indicators, the difference is as much as thirteenfold.

Uninsured rates for working-age adults, for example, ranged from 4 percent in Massachusetts localities to nearly 50 percent in Harlingen and McAllen, Texas, in 2014. Despite the broad gains in health coverage, there are still many places in the country, particularly in Texas and the Southeast, where at least one of four working-age adults remains uninsured.

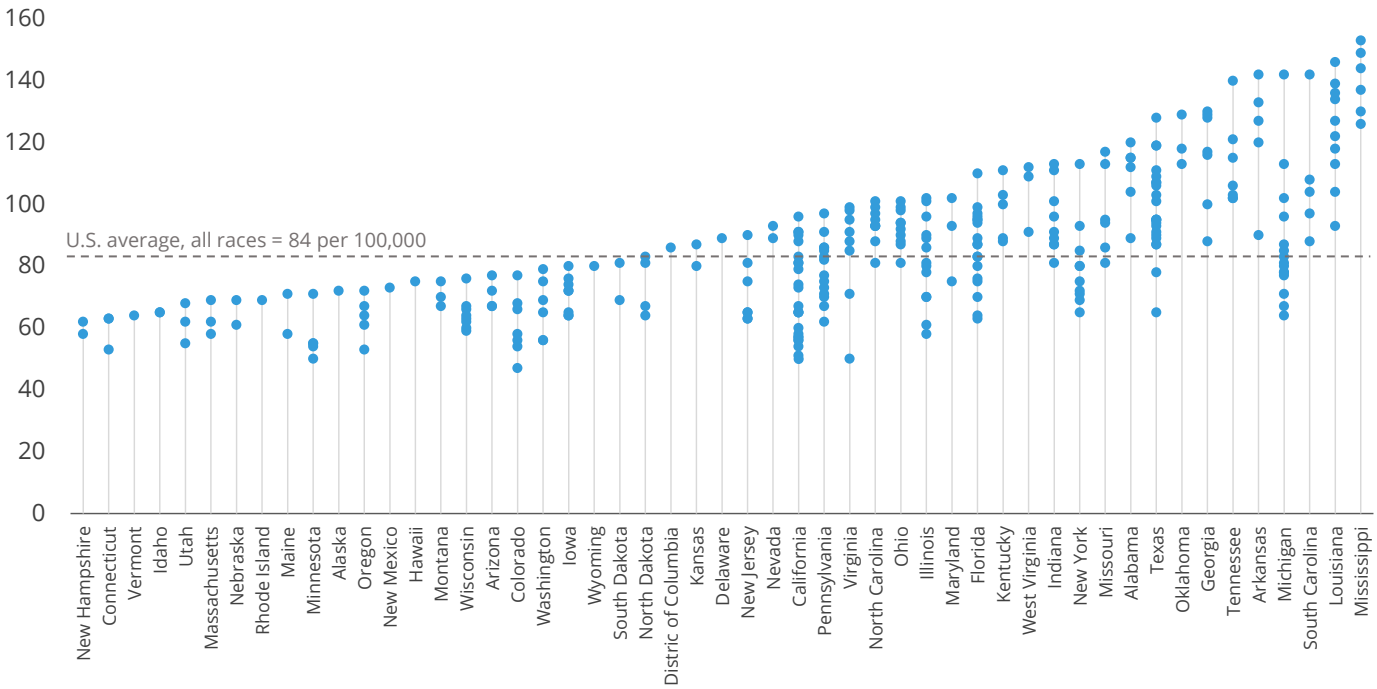
Infant mortality varied more than threefold across regions in 2012–13, ranging from less than three deaths per 1,000 live births in San Mateo and Santa Barbara, Calif. (similar to rates experienced in Norway, which has among the lowest in the world) to more than 10 deaths per 1,000 live births in parts of Mississippi, South Carolina, and Georgia (rates that are on par with Serbia and China). Local efforts to reduce infant mortality have made a difference in places such as Stockton, Calif., and Grand Rapids, Mich.[3]

**Performance varies widely within states.** Striking differences among local areas *within* states point to additional opportunities for improvement. For example, premature deaths from treatable conditions varied more than twofold across Michigan, ranging from 64 deaths per 100,000 in Traverse City to 142 deaths per 100,000 in the Detroit suburb of Dearborn (Exhibit 5).

Exhibit 5

## Premature Death Rates Vary by Local Areas Within States

*Mortality amenable to health care: deaths per 100,000, 2012–13*




Notes: States are arranged in rank order based on the highest local mortality rate in the state.

Data: 2012 and 2013 National Vital Statistics System (NVSS) mortality all-county micro data files.

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

In fact, on most *Scorecard* indicators, wide variation exists within many large states. In Texas, the share of adults who reported going without needed care because of the cost varied from 12 percent in Temple to 31 percent in McAllen. (See box below for how a health system in Temple, Texas, made efforts to improve patient access to care.) And in Florida, hospital admission rates for younger Medicare beneficiaries (ages 65–74) for potentially avoidable causes ranged from14 admissions per 1,000 in Sarasota to 46 per 1,000 in Lakeland.

## Temple, Texas
### A Focus on Patient-Centered Care and Patient Safety

While other health systems also have contributed to the health care gains seen in the Temple region of central Texas, Baylor Scott & White Health (BSWH) has undertaken a number of initiatives in recent years that may be helping to move the needle. The nonprofit health system, Texas's largest, runs three of the 10 hospitals in the Temple hospital referral region and provides care for an estimated two-thirds of the 503,000 people who live there.

The Temple area improved on nearly half the indicators that could be tracked over time (16 of 33) in The Commonwealth Fund's 2016 *Scorecard on Local Health System Performance*.

- BSWH's focus on providing patient-centered care may have contributed to improvements in health care access for Temple area residents. In recent years, the health system has transformed its primary care clinics into patient-centered medical homes and introduced same-day appointments for primary and specialty care. The region has experienced a substantial reduction in the number of at-risk adults without a recent routine doctor's visit and increased shares of adults who have a usual source of care and receive age-appropriate vaccines. There also has been a decline in the rate of potentially avoidable emergency department visits by Medicare beneficiaries.
- Improvements in hospital safety may have been aided by BSWH's efforts to make performance on patient safety measures a bigger part of physician compensation. Strengthened nursing protocols may have helped as well: nurses now note on huddle boards which patients have complications, such as pressure ulcers, and they make more frequent rounds.

But the *Scorecard* also revealed gaps in health system performance. Robert Probe, M.D., chief medical officer of BSWH, says three measures he might choose to focus on are adult obesity, avoidable emergency department visits (the region's rate is still high despite improvement), and Medicare beneficiaries' hospital admissions for conditions that can be treated in ambulatory care settings. "While we [clinicians] strive to base clinical decisions on published guidelines, these calls are often influenced by local tradition. But being an outlier with an increased [hospital] admission rate makes me ask, 'Are our practices similar to what's being used around the rest of the country?'"

*Robert Probe, M.D., Chief Medical Officer of BSWH, and Glen Couchman, M.D., Chief Medical Officer of BSWH-Central Texas division, generously shared information and insights for this profile.*

**Costs vary for Medicare and private insurance enrollees, even within the same local area.** The cost of health care varies widely between, and even within, local areas. Per-enrollee spending among Medicare beneficiaries in Miami, Fla., the highest-spending region, is more than double that in Honolulu, Hawaii, the lowest-spending region ($13,189 vs. $5,593). In the working-age population with employer-sponsored insurance, per-enrollee spending differences are even greater, ranging from $2,720 (Columbus, Ga.) to $9,362 (Wilkes-Barre, Pa.)—three times as much.*

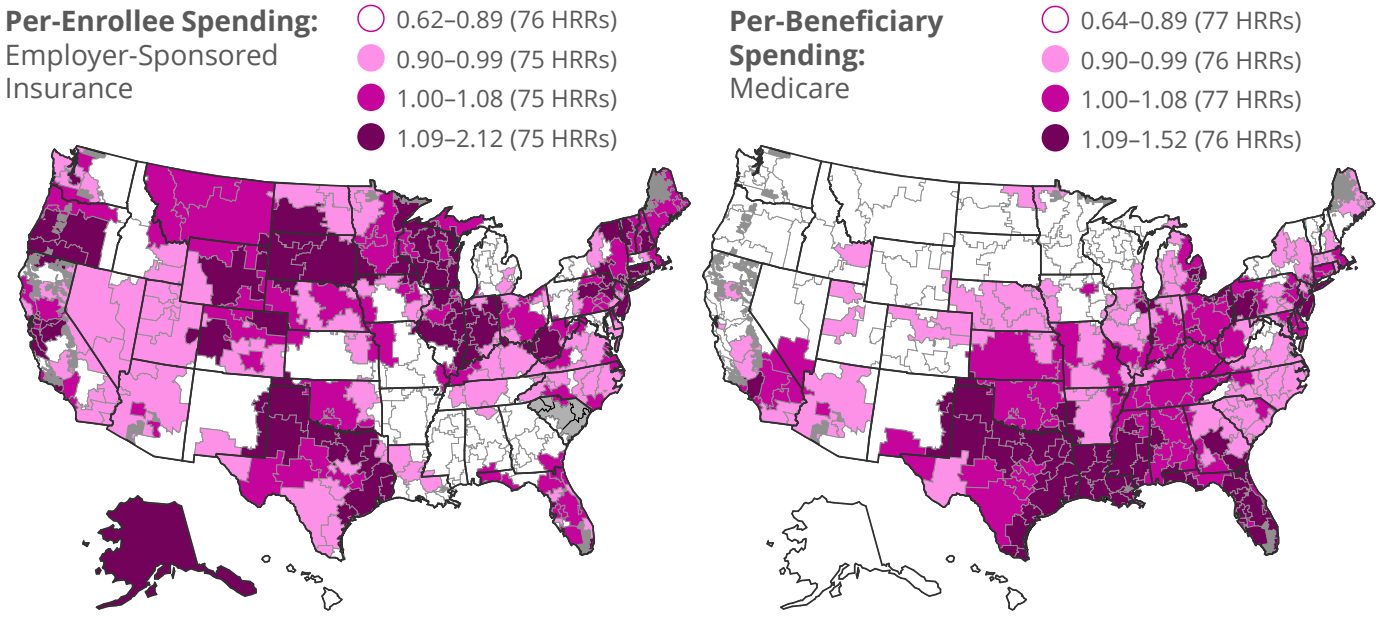
Even within communities, there is little relationship, and big relative differences, between per-enrollee health care spending in employer-sponsored plans and Medicare (Exhibit 6). Most areas tend to have relatively high spending for one population and low spending for the other (see Appendix). In fact, only 13 areas have relatively low spending per enrollee (in the lower 25th percentile) for both the Medicare and employer-sponsored, commercially insured populations. In 23 areas, meanwhile, spending is relatively high for both populations; these areas, mainly in Florida, Indiana, New Jersey, and Texas, are in the upper 75th percentile of spending.

While higher spending is not always an indicator of inefficiency, particularly if it reflects a sicker population with complex health needs, it is not a reliable barometer of the quality of care delivered or better patient outcomes.

* Per-enrollee spending estimates for Medicare and employer-sponsored coverage are adjusted for regional wage differences. Estimates exclude prescription drugs costs, and Medicare estimates exclude extra payments made for graduate medical education.

Exhibit 6

# Employer-Sponsored Insurance and Medicare Spending per Enrollee, Relative to U.S Median Spending for Each Population, 2014




Notes: Ratio values lower than 1.0 indicate lower-than-median spending, ratio values higher than 1.0 indicate higher-than-median spending. Median spending is determined separately for the commercially insured and Medicare populations. Spending estimates exclude prescription drug costs; are adjusted for regional wage differences; and Medicare estimates reflect only the age 65+ Medicare fee-for-service population.

Data: Commercial—2014 Truven MarketScan Database, analysis by M. Chernew, Harvard Medical School.
Medicare—2014 administrative claims via February 2016 CMS Geographic Variation Public Use File.

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

**Health system experience in the nation's largest cities.** Large cities are the nation's economic and innovation hubs and home to many of the nations' most well-known hospitals and health systems. The largest U.S. metropolitan areas, comprising 53 local areas, account for 45 percent of the nation's total population, highlighting the importance of major cities in driving health system performance. Performance across these communities mirrors patterns seen nationally, with wide variation in urban residents' ability to access affordable care, in the quality of care received, and in health outcomes. (See the Appendix for a summary of health system performance in the local areas making up the nation's largest metropolitan areas.)

# How Local Health System Performance Relates to Income

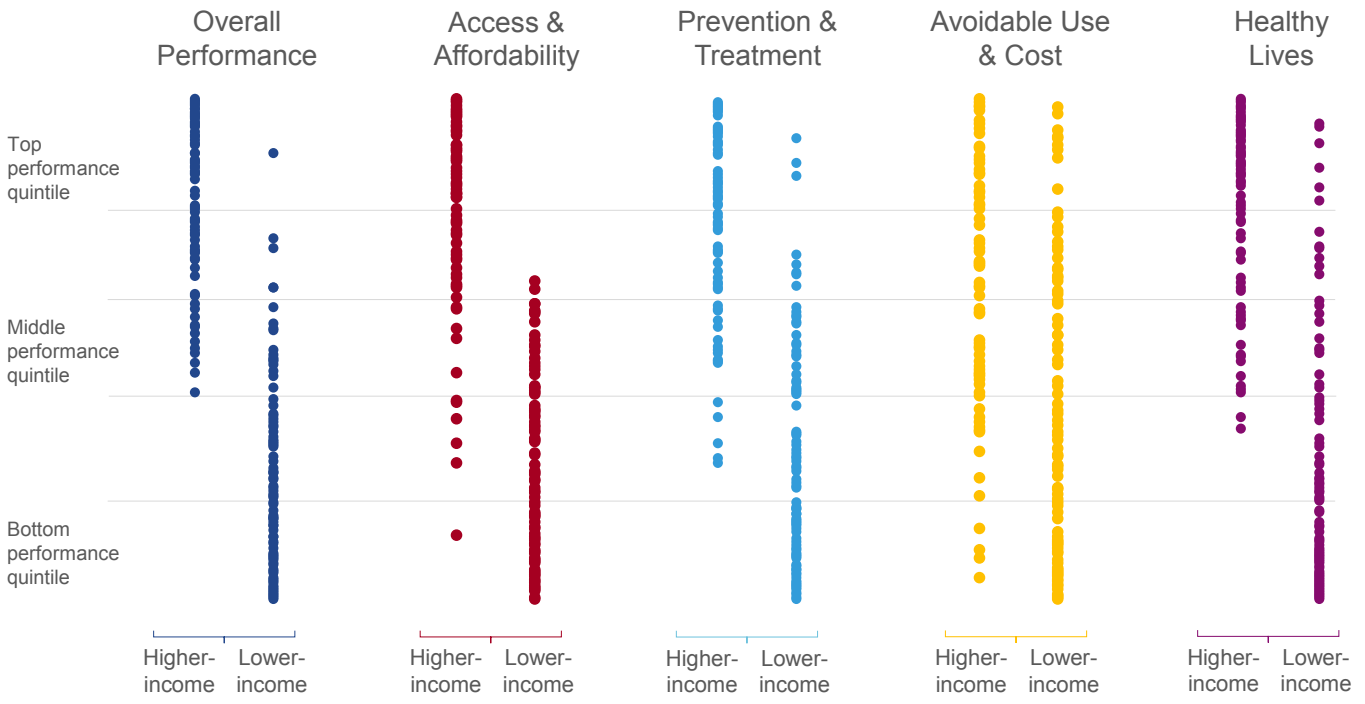
Local areas with a disproportionate share of low-income residents tend to exhibit worse health system performance than areas with relatively fewer low-income residents. (For simplicity, we refer to these as lower-income and higher-income areas.*) As Exhibit 7 illustrates, lower-income areas tended to rank below higher-income ones on three of our performance dimensions—access to care, quality of care, and health outcomes. However, in each dimension, there were several lower-income communities that outperformed wealthier ones.

Compared with residents of higher-income areas, those living in lower-income areas are:

- more likely to report going without needed medical care because of the cost (19% vs. 12%)
- more likely to receive a high-risk prescription medication (20% vs. 13% among Medicare beneficiaries)
- more likely to die early in life from treatable conditions (106 vs. 68 deaths per 100,000 population)
- more likely to have lost six or more teeth because of decay or gum disease (15% vs. 8%).

Exhibit 7

## Scorecard Performance Among Lower- and Higher-Income Local Areas: Low-Income Communities Tend to Rank Lower




Note: Lower-income local areas are defined as those hospital referral regions (HRRs) where 40% or more of residents live in households with incomes below 200% of the Federal Poverty Level (FPL). Higher-income local areas are defined as those HRRs where fewer than 30% of residents live in households with incomes below 200% FPL. Quintile delineations are are based on overall Scorecard performance.

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

* Lower-income local areas are defined as those hospital referral regions (HRRs) where 40 percent or more of residents live in households with incomes below 200 percent of the federal poverty level (FPL). Higher-income local areas are defined as those HRRs where fewer than 30 percent of residents live in households with incomes below 200 percent FPL. These boundaries approximate the interquartile range seen across the 306 HRRs.

**Some communities with large low-income populations stand out for their high performance or for the progress they have made.** For example, the Santa Barbara, Calif., region, where 41 percent of the population lives below twice the federal poverty level, ranked 38th overall, putting the community in the top quintile of performance in the *Scorecard*. Four other lower-income communities ranked in the top two quintiles of performance. And two of the four local areas with the greatest number of improved indicators (Stockton, Calif., and Cape Girardeau, Mo.) have large low-income populations. (See box below to learn about Stockton's efforts to improve local health.)

## Stockton, California
### Injecting Health into Public Life

The city of Stockton—the seat of San Joaquin County in Northern California—made headlines when its leaders filed for bankruptcy after the 2008 housing crash. A less-reported story is the 41 percent of area residents who live on incomes below twice the federal poverty level. Yet despite the health challenges created by chronic poverty, this region of nearly 600,000 made strides on all four dimensions of health system performance in The Commonwealth Fund's 2016 *Scorecard on Local Health System Performance*.

Stockton's leaders collaborate to promote a "health in all policies" approach in which the public health department, providers, schools, and others work together to inject health into public life. For example:

- To expand access to care, a nonprofit organization runs health clinics in four local high schools that provide physical check-ups and behavioral health counseling. School nurses also administer flu vaccinations to children and parents, helping to reduce hospital use and enable rapid response to flu outbreaks.
- A nurse-led program offering education and support to pregnant African American women through the baby's first year of life led to a sharp drop in infant mortality for this group, from 14.3 deaths per 1,000 in 2013 to 10.7 per 1,000 in 2014. And three local hospitals have earned "baby-friendly" designations for their efforts to encourage breastfeeding among new moms. At one, San Joaquin General, breastfeeding rates rose from 5 percent in 2006 to 74 percent in 2016.
- Bolstered by California's Medicaid expansion, the public health department and managed care plans encourage people to enroll in coverage and find a medical home. And health plans have been promoting cancer screening, an area in which Stockton has performed particularly well.

Research shows that communities can reap large returns on their investments in public health programs such as these.

Stockton still faces challenges, including high rates of chronic conditions, says Tammy Evans, the county's public health director. But she sees momentum building for change. At a recent meeting to promote early access to dental care, it was standing-room only. "Everybody recognizes the need in the community," she says, "and everybody is saying 'Let me know what I can do—I want to be a part of it.'"

Many economically disadvantaged regions were also among the most improved on certain indicators. (See box below to learn how local leaders in Pueblo, Colo., are collaborating to improve health system performance.) As noted previously, Jonesboro, Ark., where almost half the population has low incomes, had the largest decline in uninsured rates between 2012 and 2014. Three lower-income areas saw the largest reduction (9 percentage points) in the share of Medicare beneficiaries receiving high-risk prescription medications, exceeding the national rate of improvement.

Medicare's payment penalties for high 30-day readmission rates seem to be having their intended effect of reducing rehospitalizations. The *Scorecard* finds that 30-day readmissions for Medicare beneficiaries fell in the majority of U.S. localities between 2012 and 2014. The reduction was greater in lower-income areas than in higher-income areas (7 vs. 5 fewer readmissions per 1,000 beneficiaries, respectively) (Exhibit 8). McAllen, Texas, which has the highest proportion of low-income residents, saw the largest reduction of all lower-income areas, with 17 fewer readmissions per 1,000 beneficiaries in 2014.

## Pueblo, Colorado
### Better Health Through Data and Collaboration

After its local steel mill, and largest employer, downsized in the 1980s, the high-desert region of Pueblo, Colo., suffered a long economic decline that has left nearly half its residents living under twice the federal poverty level. Many have unhealthy lifestyles, as evidenced by smoking and obesity rates that are among the state's highest.

In 2010, leaders of Pueblo's local hospitals and other provider organizations joined with the public health, social services, education, and business sectors to assess how they could address residents' health challenges and reinvest savings achieved from prevention efforts to revitalize the ethnically diverse community. They formed the Pueblo Triple Aim Corporation, named after the Institute for Healthcare Improvement's model for improving population health and patient experiences while reducing the costs of care. Supported by community donations and philanthropic dollars, the nonprofit has been instrumental in reducing the teen pregnancy rate by 40 percent.

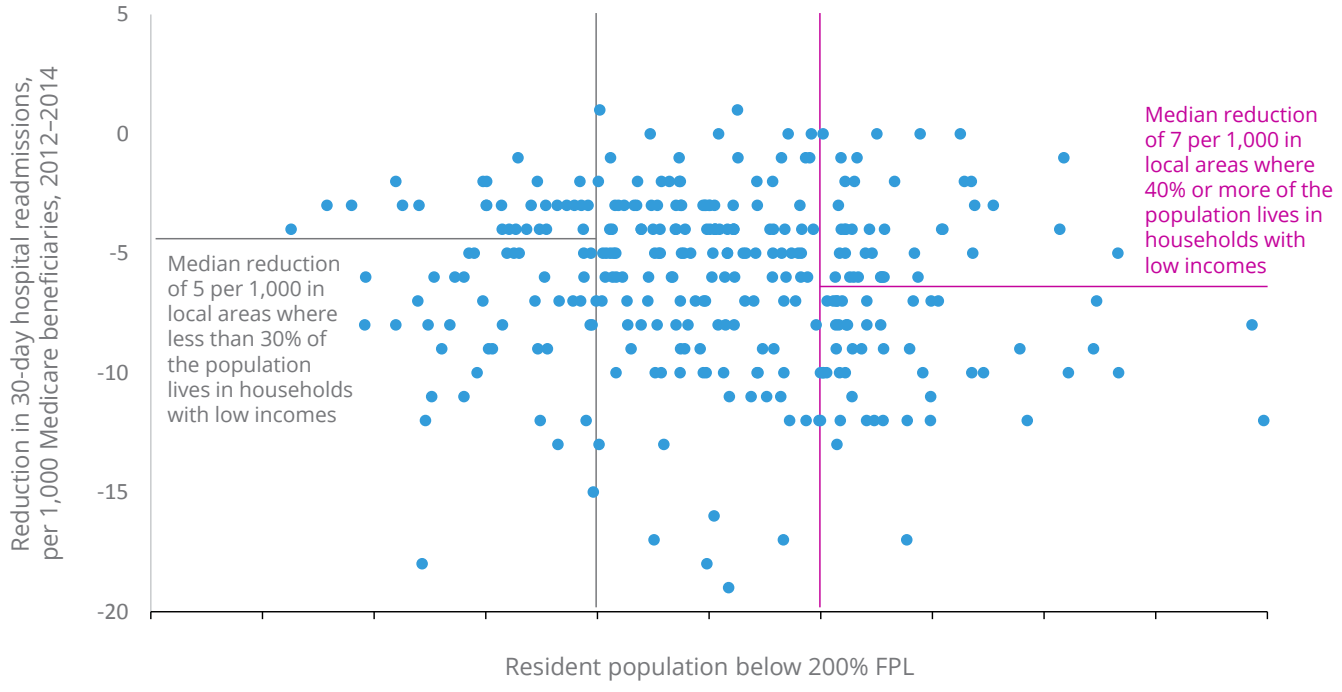
The Commonwealth Fund's 2016 *Scorecard on Local Health System Performance* suggests these and related efforts are starting to pay dividends. From 2011 to 2014, the Pueblo hospital referral region (population 171,000) was among 14 that improved on more than half of the *Scorecard*'s 33 indicators that can be tracked over time.

- Improvements in access to care likely reflect the effects of Colorado's Medicaid expansion, local investment to expand the capacity of the Pueblo Community Health Center, and establishment of a medical residency clinic by a local hospital.
- To improve care coordination and follow-up care, the health center and a local behavioral health organization have stationed nurse care coordinators in local hospital emergency departments. This may have contributed to a reduction in avoidable hospital use.

Local leaders consider performance measurement a key to educating stakeholders and motivating change efforts. "It allows us to target our message to the community to show where we rank and what we are doing compared to other places in the state," says Matt Guy, executive director of the Pueblo Triple Aim Corporation.

Exhibit 8

# Low-Income Local Areas Are Making Progress in Reducing 30-Day Readmissions to the Hospital




Note: : Lower-income local areas are defined as those hospital referral regions (HRRs) where 40% or more of residents live in households with incomes below 200% of the Federal Poverty Level (FPL). Higher-income local areas are defined as those HRRs where fewer than 30% of residents live in households with incomes below 200% FPL.

Data: 2012 and 2014 administrative claims via February 2016 CMS Geographic Variation Public Use File.

Source: Commonwealth Fund Scorecard on Local Health System Performance, 2016 Edition.

# Opportunity for Improved Performance

As we noted earlier, the performance gains that the *Scorecard* identifies likely reflect the influence of public policy—most notably Affordable Care Act—as well as the results of public and private initiatives implemented at the national, state, and community levels. The improved performance achieved in many communities, including those where many people have low incomes, suggest that local health systems can take steps to better serve all residents.

By capitalizing on opportunities for improvement, communities can expand access to care, save lives, and improve care experiences for patients. (See the Commonwealth Fund's U.S. Health System Data Center for more information about the potential impact of change in each local area.) If all local health systems achieved the benchmarks set by top performers, nationally we might expect the following gains:

- **19 million** additional adults and children would gain health insurance (on top of the 2014 gains in coverage achieved under the Affordable Care Act), thus helping to reduce cost barriers to needed care.
- **18 million** fewer adults would forgo needed care because of the cost.
- **11 million** additional adults would receive recommended cancer screenings, while **26 million** more would receive recommended vaccines.
- Medicare beneficiaries would have **1.4 million** fewer emergency room visits for nonemergency care or conditions treatable with primary care.
- There would be **100,000** fewer premature deaths before age 75 for conditions that can be detected early and treated with effective follow-up care.
- **11 million** fewer adults (ages 18–64) would lose six or more teeth from decay, infection, or gum disease.

The *Scorecard's* findings are also a reminder that where you live matters. While pockets of high performance exist and progress is more widespread in recent years, the sobering truth is that some people benefit more from their local health care delivery systems than others do.

Many opportunities remain for improvement in many places across the country. For example, adult obesity rates rose in 111 of 306 areas between 2011–12 and 2013–14, which may portend a worsening in chronic conditions in future years. And rates of premature death from treatable medical conditions were mostly unchanged in the years measured by the *Scorecard* (between 2010–11 and 2012–13).

Over the long term, federal and state policies may be required to address socioeconomic inequities and ensure that all communities have equal opportunities to improve. But as the *Scorecard* indicates, community and local delivery system leaders across the country are already demonstrating the power of innovation and collaboration to promote health. The examples highlighted in this report offer encouragement that—even over a relatively short time—health care professionals and local leaders can rise to the challenge of meeting their community's health needs.

# SCORECARD METHODS

The Commonwealth Fund's *Scorecard on Local Health System Performance, 2016 Edition,* evaluates 36 key indicators grouped into four dimensions:

**Access and Affordability** (5 indicators) includes rates of health insurance coverage for children and adults, as well as people's cost-related barriers to receiving care.

**Prevention and Treatment** (13 indicators) includes receipt of preventive care and quality of care in ambulatory, hospital, and long-term care and postacute care settings.

**Potentially Avoidable Hospital Use and Cost** (9 indicators) includes hospital use that might have been reduced with timely and effective care and follow-up care, as well as estimates of per-person spending among Medicare beneficiaries and working-age individuals with employer-sponsored insurance.

**Healthy Lives** (9 indicators) includes premature death rates and behaviors that put health at risk.

The following principles guided the development of the *Scorecard*:

- *Geography:* The unit of analysis used in the Local Scorecard is the hospital referral region (HRR). HRRs are regional health care markets representing patients' travel patterns for the receipt of certain health care services. Every HRR is anchored by a city with at least one medical center that serves as the region's referral hospital for complex surgeries. HRRs are referred to as local areas, regions, or localities throughout the report.

- *Performance metrics:* The 36 metrics selected for this report represent multiple dimensions of health system performance. Where possible, the indicators align with those used in The Commonwealth Fund's previous state and local health system scorecards. However, several indicators included in the 2012 local scorecard were dropped for this edition, either because of data availability issues or concerns over the ongoing relevance of the measure. At the same time, several new measures were added, including substantially revised measures of adult preventive care.

- *Measuring change over time:* We were able to construct a time series for 33 of 36 indicators. Generally, there were two to four years between *historic* and *current* year data observation, though the starting and ending points, as well as total length of time, varied somewhat between indicators. We considered a change in an indicator's value between the historic- and current-year data points to be meaningful if it was at least 0.5 standard deviations larger than the indicator's observed values between the two time points—a common approach in social science research.[4]

- *Data sources:* Our performance indicators draw from publicly available data sources, including government-sponsored surveys, registries, publicly reported quality-of-care indicators, vital statistics, mortality data, and administrative databases. The most current data available were used in this report. The Appendix provides detail on the data sources and time frames.

- *Scoring and ranking methods:* We followed the scoring method used for the previous local scorecard. For each indicator, we calculated a ratio comparing the local area (HRR) rate to a benchmark—the top 1 percent of HRRs. Where higher rates would indicate a move in a positive direction, we divided the local rate by the benchmark. Where lower rates would indicate a positive direction (e.g., mortality rates), we divided the benchmark by the local rate. The top ratio (best) was set to 100 percent for scoring purposes. Ratio scores for metrics within each of the four health system performance dimensions were averaged to calculate a dimension summary score for each local area. We then rank-ordered local areas based on their dimension summary score, and dimension ranks were averaged to derive an overall performance score. Local areas were grouped into quintiles of performance, both overall and on each dimension.

# NOTES

[1] Centers for Disease Control and Prevention, Vital Statistics Rapid Release, June 9, 2016, http://www.cdc.gov/nchs/products/vsrr/mortality-dashboard.htm; Centers for Disease Control and Prevention, *Policy Options to Impact Social Determinants of Health*, http://www.cdc.gov/socialdeterminants/policy/index.htm.

[2] See J. Driessen, S. H. Baik, and Y. Zhang, "Explaining Improved Use of High-Risk Medications in Medicare Between 2007 and 2011," *Journal of the American Geriatrics Society*, March 2016 64(3):674–76.

[3] For a review, see Centers for Disease Control and Prevention, "CDC Grand Rounds: Public Health Approaches to Reducing U.S. Infant Mortality," *Morbidity and Mortality Weekly Report,* Aug. 9, 2013 62(31):625–28, http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6231a3.htm.

[4] B. Middel and E. van Sonderen, "Statistical Significant Change Versus Relevant or Important Change in (Quasi) Experimental Design: Some Conceptual and Methodological Problems in Estimating Magnitude of Intervention-Related Change in Health Services Research," *International Journal of Integrated Care,* 2002 2(17):1–18.

## APPENDIX A1. Local Area Scorecard Data Years and Databases

| | Indicator | Past year | Current year | Database |
|---|---|---|---|---|
| | **ACCESS & AFFORDABILITY** | | | |
| 1 | Adults ages 19–64 uninsured | 2012 | 2014 | ACS PUMS |
| 2 | Children ages 0–18 uninsured | 2012 | 2014 | ACS PUMS |
| 3 | Adults who went without care because of cost in past year | 2011/12 | 2013/14 | BRFSS |
| 4 | At-risk adults without a routine doctor visit in past two years | 2011/12 | 2013/14 | BRFSS |
| 5 | Adults without a dental visit in past year | —[a] | 2012 & 2014 | BRFSS |
| | **PREVENTION & TREATMENT** | | | |
| 6 | Adults with a usual source of care | 2011/12 | 2013/14 | BRFSS |
| 7 | Adults with age- and gender-appropriate cancer screenings | —[a] | 2012 & 2014 | BRFSS |
| 8 | Adults with age-appropriate vaccines | 2011/12 | 2013/14 | BRFSS |
| 9 | Medicare beneficiaries who received at least one drug that should be avoided in the elderly | 2011 | 2013 | 5% Medicare enrolled in Part D |
| 10 | Medicare beneficiaries with dementia, hip/pelvic fracture, or chronic renal failure who received a prescription drug that is contraindicated for that condition | 2011 | 2013 | 5% Medicare enrolled in Part D |
| 11 | Risk-adjusted 30-day mortality among Medicare beneficiaries hospitalized for heart attack, heart failure, pneumonia, or stroke | 07/2010–06/2013 | 07/2011–06/2014 | CMS Hospital Compare |
| 12 | Hospital safety composite score | 07/201–06/2013 | 07/2012–06/2014 | CMS Hospital Compare |
| 13 | Hospitalized patients given information about what to do during their recovery at home | 2013 | 2014 | HCAHPS (via CMS Hospital Compare) |
| 14 | Hospitalized patients who reported hospital staff always managed pain well, responded when needed help to get to bathroom or pressed call button, and explained medicines and side effects | 2013 | 2014 | HCAHPS (via CMS Hospital Compare) |
| 15 | Home health patients who get better at walking or moving around | 2012 | 2014 | OASIS (via CMS Home Health Compare) |
| 16 | Home health patients whose wounds improved or healed after an operation | 2012 | 2014 | OASIS (via CMS Home Health Compare) |
| 17 | High-risk nursing home residents with pressure sores | 1/2013–9/2013 | 1/2015–9/2015 | MDS (via CMS Nursing Home Compare) |
| 18 | Long-stay nursing home residents with an antipsychotic medication | 1/2013–9/2013 | 1/2015–9/2015 | MDS (via CMS Nursing Home Compare) |
| | **AVOIDABLE HOSPITAL USE & COST** | | | |
| 19 | Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, ages 65–74, per 1,000 beneficiaries | 2012 | 2014 | CCW (via CMS Geographic Variation Public Use File) |
| 20 | Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, age 75 and older, per 1,000 beneficiaries | 2012 | 2014 | CCW (via CMS Geographic Variation Public Use File) |
| 21 | Medicare 30-day hospital readmissions, rate per 1,000 beneficiaries | 2012 | 2014 | CCW (via CMS Geographic Variation Public Use File) |
| 22 | Short-stay nursing home residents readmitted within 30 days of hospital discharge to nursing home | 2010 | 2012 | MedPAR, MDS |
| 23 | Long-stay nursing home residents hospitalized within a six-month period | 2010 | 2012 | MedPAR, MDS |
| 24 | Home health patients also enrolled in Medicare with a hospital admission | 2012 | 2014 | OASIS (via CMS Home Health Compare) |
| 25 | Potentially avoidable emergency department visits among Medicare beneficiaries, per 1,000 beneficiaries | 2011 | 2013 | Medicare SAF |
| 26 | Total reimbursements per enrollee (age 18-64) with employer-sponsored insurance | 2013 | 2014 | Truven MarketScan |
| 27 | Total Medicare (Parts A & B) reimbursements per enrollee | 2012 | 2014 | CCW (via CMS Geographic Variation Public Use File) |
| | **HEALTHY LIVES** | | | |
| 28 | Mortality amenable to health care, deaths per 100,000 population | 2010-11 | 2012-13 | CDC NVSS: Mortality Restricted Use File |
| 29 | Breast cancer deaths per 100,000 female population | 2010-11 | 2012-13 | CDC NVSS: Mortality Restricted Use File |
| 30 | Colorectal cancer deaths per 100,000 population | 2010-11 | 2012-13 | CDC NVSS: Mortality Restricted Use File |
| 31 | Suicide deaths per 100,000 population | 2010–11 | 2012-13 | CDC NVSS: Mortality Restricted Use File |
| 32 | Infant mortality, deaths per 1,000 live births | 2010-11 | 2012-13 | CDC NVSS: Mortality Restricted Use File |
| 33 | Adults ages 18–64 who report fair/poor health or activity limitations because of physical, mental, or emotional problems | 2011/12 | 2013/14 | BRFSS |
| 34 | Adults who smoke | 2011/12 | 2013/14 | BRFSS |
| 35 | Adults ages 18–64 who are obese (BMI >= 30) | 2011/12 | 2013/14 | BRFSS |
| 36 | Percent of adults ages 18–64 who have lost six or more teeth because of tooth decay, infection, or gum disease | —[a] | 2012 & 2014 | BRFSS |

Note: (a) Previous data not available or its definition is not comparable over time.

## Appendix A2. Local Scorecard Indicator Descriptions and Source Notes

**1. Percent of adults ages 19–64 uninsured:** Authors' analysis of 2012 and 2014 1-year American Community Survey (ACS) Public Use Micro Sample (PUMS) (U.S. Census Bureau, ACS PUMS, 2012, 2014).

**2. Percent of children ages 0–18 uninsured:** Authors' analysis of 2012 and 2014 1-year American Community Survey (ACS) Public Use Micro Sample (PUMS) (U.S. Census Bureau, ACS PUMS, 2012, 2014).

**3. Percent of adults who went without care because of cost in the past year:** Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**4. Percent of at-risk adults without a routine doctor visit in past two years:** Percent of adults age 50 or older, or in fair or poor health, or ever told they have diabetes or pre-diabetes, acute myocardial infarction, heart disease, stroke, or asthma who did not visit a doctor for a routine checkup in the past two years. Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**5. Percent of adults without a dental visit in the past year:** Percent of adults who did not visit a dentist or dental clinic within the past year. Authors' analysis of 2012 and 2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2012, 2014).

**6. Percent of adults with a usual source of care:** Percent of adults age 18 and older who have one (or more) person they think of as their personal health care provider. Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**7. Percent of adults with age- and gender-appropriate cancer screenings:** Percent of adults ages 50–74 who have received sigmoidoscopy or colonoscopy in the past 10 years or a fecal occult blood test in the past two years; a mammogram in the past two years (women ages 50–74 only); or a pap smear in the past three years (women ages 25–64 only). Authors' analysis of 2012 and 2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2012, 2014).

**8. Percent of adults with age-appropriate vaccines:** Percent of adults age 18 and older who have received a flu shot in the past year and a pneumonia vaccine ever if age 65 and older. Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**9. Percent of Medicare beneficiaries who received at least one drug that should be avoided in the elderly:** Percent of Medicare beneficiaries age 65 and older who received at least one drug from a list of 13 classes of high-risk prescriptions that should be avoided by the elderly. Y. Zhang and S. H. Baik, University of Pittsburgh, analysis of 2011 and 2013 5% sample of Medicare beneficiaries enrolled in stand-alone Medicare Part D plans.

**10. Percent of Medicare beneficiaries with dementia, hip/pelvic fracture, or chronic renal failure who received a prescription drug in an ambulatory care setting that is contraindicated for that condition:** Y. Zhang and S. H. Baik, University of Pittsburgh, analysis of 2011 and 2013 5% sample of Medicare beneficiaries enrolled in stand-alone Medicare Part D plans.

**11. Risk-adjusted 30-day mortality among Medicare patients hospitalized for heart attack, heart failure, pneumonia, or stroke:** Risk-standardized, all-cause 30-day mortality rates for Medicare patients age 65 and older hospitalized with a principal diagnosis of heart attack, heart failure, stroke, or pneumonia between July 2010 and June 2013 and July 2011 and June 2014. All-cause mortality is defined as death from any cause within 30 days after the index admission, regardless of whether the patient dies while still in the hospital or after discharge. Authors' analysis of Medicare enrollment and claims data retrieved from 4th Quarter 2015 and 4th Quarter 2014 CMS Hospital Compare (DHHS n.d.).

**12. Hospital Safety Composite Score:** Values are the unweighted average of the region's hospitals' safety composite (PSI 90) score between July 2010 and June 2013 and July 2011 and June 2014. The score includes pressure ulcers, iatrogenic pneumothorax, infection as a result of medical care, accidental puncture or laceration, and postoperative hip fracture, pulmonary embolism or deep vein thrombosis, sepsis, and wound dehiscence. The composite score is scaled such that values < 1 represent lower than expected complication rates and values > 1 represent higher than expected rates. Authors' analysis of Medicare enrollment and claims data retrieved from 4th Quarter 2015 and 4th Quarter 2014 CMS Hospital Compare (DHHS n.d.).

**13. Percent of hospitalized patients who were given information about what to do during their recovery at home:** Authors' analysis of 2013 and 2014 Hospital Consumer Assessment of Healthcare Providers and Systems Survey data (HCAHPS n.d.) retrieved from retrieved from 4th Quarter 2015 and 4th Quarter 2014 CMS Hospital Compare (DHHS n.d.).

**14. Percent of hospitalized patients who reported hospital staff always managed pain well, responded when needed help to get to bathroom or pressed call button, and explained medicines and side effects:** Authors' analysis of 2013 and 2014 Hospital Consumer Assessment of Healthcare Providers and Systems Survey data (HCAHPS n.d.) retrieved from retrieved from 4th Quarter 2015 and 4th Quarter 2014 CMS Hospital Compare (DHHS n.d.).

**15. Percent of home health patients who get better at walking or moving around:** Percent of all home health episodes in which a person improved at walking or moving around compared to a prior assessment. Episodes for which the patient, at start or resumption of care, was able to ambulate independently are excluded. Authors' analysis of 2012 and 2014 Outcome and Assessment Information Set (CMS, OASIS n.d.) as reported in CMS Home Health Compare. Data retrieved from 2nd quarter 2015 and 2nd quarter 2014 CMS Home Health Compare (DHHS n.d.).

**16. Percent of home health patients whose wounds improved or healed after an operation:** Percent of all home health episodes in which a person's surgical wound is more fully healed compared to a prior assessment. Episodes for which the patient, at start or resumption of care, did not have any surgical wounds or had only a surgical wound that was unobservable are excluded. Authors' analysis of 2012 and 2014 Outcome and Assessment Information Set (CMS, OASIS n.d.) as reported in CMS Home Health Compare. Data retrieved from 2nd quarter 2015 and 2nd quarter 2014 CMS Home Health Compare (DHHS n.d.).

**17. Percent of high-risk nursing home residents with pressure sores:** Percent of long-stay nursing home residents impaired in bed mobility or transfer, comatose, or malnourished who have pressure sores (Stages 1–4) on target assessment. Authors' analysis of 2013 and 2015 Minimum Data Set (CMS, MDS n.d.) as reported in CMS Nursing Home Compare. Data retrieved from February 1, 2014, and February 1, 2016, CMS Nursing Home Compare data files.

**18. Percent of long-stay nursing home residents with an antipsychotic medication:** Percent of long-stay nursing home residents that received an antipsychotic medication, excluding residents with schizophrenia, Tourette's syndrome, and Huntington's disease. Authors' analysis of 2013 and 2015 Minimum Data Set (CMS, MDS n.d.) as reported in CMS Nursing Home Compare. Data retrieved from February 1, 2014, and February 1, 2016, CMS Nursing Home Compare data files.

**19. Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, ages 65–74, per 1,000 beneficiaries:** Hospital admissions of fee-for-service Medicare beneficiaries ages 65–74 for one of the following eight ambulatory care–sensitive (ACS) conditions: long-term diabetes complications, lower extremity amputation among patients with diabetes, asthma or chronic obstructive pulmonary disease, hypertension, congestive heart failure, dehydration, bacterial pneumonia, or urinary tract infection. Authors' analysis of 2012 and 2014 Chronic Conditions Warehouse (CCW) data, retrieved from the February 2016 CMS Geographic Variation Public Use File (CMS, Office of Information Products and Analytics (OPIDA) 2016).

**20. Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, age 75 and older, per 1,000 beneficiaries:** Hospital admissions of fee-for-service Medicare beneficiaries age 75 and older for one of the following eight ambulatory care–sensitive (ACS) conditions: long-term diabetes complications, lower extremity amputation among patients with diabetes, asthma or chronic obstructive pulmonary disease, hypertension, congestive heart failure, dehydration, bacterial pneumonia, or urinary tract infection. Authors' analysis of 2012 and 2014 Chronic Conditions Warehouse (CCW) data, retrieved from the February 2016 CMS Geographic Variation Public Use File (CMS, Office of Information Products and Analytics (OPIDA) 2016).

**21. Medicare 30-day hospital readmissions, rate per 1,000 beneficiaries:** All hospital admissions among Medicare beneficiaries age 65 and older that were readmitted within 30 days of an acute hospital stay for any cause. A correction was made to account for likely transfers between hospitals. Authors' analysis of 2012 and 2014 Chronic Conditions Warehouse (CCW) data, retrieved

from the February 2016 CMS Geographic Variation Public Use File (CMS, Office of Information Products and Analytics (OPIDA) 2016).

**22. Percent of short-stay nursing home residents readmitted within 30 days of hospital discharge to the nursing home:** Percent of newly admitted nursing home residents (never been in a facility before) who are rehospitalized within 30 days of being discharged to nursing home. V. Mor, Brown University, analysis of 2010 and 2012 Medicare enrollment data and Medicare Provider and Analysis Review (CMS, MEDPAR 2010, 2012).

**23. Percent of long-stay nursing home residents hospitalized within a six-month period:** Percent of long-stay residents (residing in a nursing home for at least 90 consecutive days) who were ever hospitalized within six months of baseline assessment. V. Mor, Brown University, analysis of 2010 and 2012 Medicare enrollment data, Medicare Provider and Analysis Review File (CMS, MEDPAR 2010, 2012).

**24. Percent of home health patients also enrolled in Medicare with a hospital admission:** Percent of acute care hospitalization for home health episodes that occurred in 2012 and 2014. Authors' analysis data from CMS Medicare claims data as reported in CMS Home Health Compare. Data retrieved from 2nd quarter 2015 and 2nd quarter 2014 CMS Home Health Compare (DHHS n.d.).

**25. Potentially avoidable emergency department visits among Medicare beneficiaries, per 1,000 beneficiaries:** Potentially avoidable emergency department visits were those that, based on diagnoses recorded during the visit and the health care service the patient received, were considered to be either nonemergent (care was not needed within 12 hours), or emergent (care needed within 12 hours) but that could have been treated safely and effectively in a primary care setting. This definition excludes any emergency department visit that resulted in an admission, as well as emergency department visits where the level of care provided in the ED was clinically indicated. J. Zheng, Harvard University, analysis of 2011 and 2013 Medicare Enrollment and Claims Data 20% sample, Chronic Conditions Warehouse (CMS, CCW 2011, 2013), using the New York University Center for Health and Public Service Research emergency department algorithm developed by J. Billings.

**26. Total reimbursements per enrollee (ages 18–64) with employer-sponsored insurance:** M. Chernew, Harvard Medical School Department of Health Care Policy, analysis of the Truven Marketscan Database. Total per enrollee spending estimates from a sophisticated regression model include reimbursed costs for health care services from all sources of payment including the health plan, enrollee, and any third-party payers incurred in 2013 and in 2014. Outpatient prescription drug charges are excluded. Enrollees with capitated plans and their associated claims are also excluded. Estimates for each HRR were adjusted for enrollees' age and sex, the interaction of age and sex, partial year enrollment and regional wage difference.

**27. Total Medicare (Parts A&B) reimbursements per enrollee:** Total Medicare fee-for-service reimbursements include payments for both Part A and Part B but exclude Part D (prescription drug costs) and extra Centers for Medicare and Medicaid Services (CMS) payments for graduate medical education and for treating low-income patients. Reimbursements reflect only the age-65-and-older Medicare fee-for-service population. Authors' analysis of 2012 and 2014 Chronic Conditions Warehouse (CCW) data, retrieved from the February 2016 CMS Geographic Variation Public Use File (CMS, Office of Information Products and Analytics (OPIDA) 2016).

**28. Mortality amenable to health care, deaths per 100,000 population:** Number of deaths before age 75 per 100,000 population that resulted from causes considered at least partially treatable or preventable with timely and appropriate medical care (see list below), as described in E. Nolte and C. M. McKee (BMJ 2003). Authors' analysis of mortality data from CDC restricted-use Multiple Cause-of-Death file and U.S. Census Bureau population data, 2010–2014 (NCHS, MCD n.d.).

| **Cause of death** | **Age range** |
|---|---|
| Intestinal infections | 0–14 |
| Tuberculosis | 0–74 |
| Other infections (diphtheria, tetanus, septicaemia, poliomyelitis) | 0–74 |
| Whooping cough | 0–14 |
| Measles | 1–14 |
| Malignant neoplasm of colon and rectum | 0–74 |
| Malignant neoplasm of skin | 0–74 |
| Malignant neoplasm of breast | 0–74 |
| Malignant neoplasm of cervix uteri | 0–74 |
| Malignant neoplasm of cervix uteri and body of uterus | 0–44 |
| Malignant neoplasm of testis | 0–74 |
| Hodgkin's disease | 0–74 |
| Leukemia | 0–44 |
| Diseases of the thyroid | 0–74 |
| Diabetes mellitus | 0–49 |
| Epilepsy | 0–74 |
| Chronic rheumatic heart disease | 0–74 |
| Hypertensive disease | 0–74 |
| Cerebrovascular disease | 0–74 |
| All respiratory diseases (excluding pneumonia and influenza) | 1–14 |
| Influenza | 0–74 |
| Pneumonia | 0–74 |
| Peptic ulcer | 0–74 |
| Appendicitis | 0–74 |
| Abdominal hernia | 0–74 |
| Cholelithiasis and cholecystitis | 0–74 |
| Nephritis and nephrosis | 0–74 |
| Benign prostatic hyperplasia | 0–74 |
| Maternal death | All |
| Congenital cardiovascular anomalies | 0–74 |
| Perinatal deaths, all causes, excluding stillbirths | All |
| Misadventures to patients during surgical and medical care | All |
| Ischemic heart disease: 50% of mortality rates included | 0–74 |

**29. Breast cancer deaths per 100,000 female population:** Authors' analysis of mortality data from CDC restricted-use Multiple Cause-of-Death file and U.S. Census Bureau population data, 2010–2013 (NCHS, MCD n.d.).

**30. Colorectal cancer deaths per 100,000 population:** Authors' analysis of mortality data from CDC restricted-use Multiple Cause-of-Death file and U.S. Census Bureau population data, 2010–2013 (NCHS, MCD n.d.).

**31. Suicide deaths per 100,000 population:** Authors' analysis of mortality data from CDC restricted-use Multiple Cause-of-Death file and U.S. Census Bureau population data, 2010–2013 (NCHS, MCD n.d.).

**32. Infant mortality, deaths per 1,000 live births:** Authors' analysis of CDC restricted-use Linked Birth and Infant Death Data, 2010–2013 (NCHS, MCD n.d.).

**33. Percent of adults ages 18–64 who report being in fair or poor health, or who have activity limitations because of physical, mental, or emotional problems:** Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**34. Percent of adults who smoke:** Percent of adults age 18 and older who ever smoked 100+ cigarettes (five packs) and currently smoke every day or some days. Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**35. Percent of adults ages 18–64 who are obese (Body Mass Index [BMI] ≥ 30):** Authors' analysis of 2011–2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2011, 2012, 2013, 2014).

**36. Percent of adults ages 18–64 who have lost six or more teeth because of tooth decay, infection, or gum disease:** Authors' analysis of 2012 and 2014 Behavioral Risk Factor Surveillance System (NCCDPHP, BRFSS 2012, 2014).

## APPENDIX B. List of 36 Indicators in the Local Area Scorecard on Health System Performance

| | Indicator | Change Over Time (No. Local Areas) | | U.S. Average Rate | | Range of Local Area Performance | | 2016 Scorecard |
|---|---|---|---|---|---|---|---|---|
| | | Improved | Worsened | Baseline[a] | 2016 Scorecard | Baseline[a] | 2016 Scorecard | Best Local Area[b] |
| | **ACCESS & AFFORDABILITY DIMENSION SUMMARY** | | | | | | | |
| 1 | Adults ages 19–64 uninsured | 189 | 0 | 21% | 16% | 5%–54% | 4%–49% | Springfield, MA, Worcester, MA |
| 2 | Children ages 0–18 uninsured | 69 | 15 | 7% | 6% | 1%–24% | 2%–20% | Boston, MA, Des Moines, IA |
| 3 | Adults who went without care because of cost in past year | 111 | 7 | 15% | 15% | 7%–36% | 6%–31% | Bloomington, IL, Waterloo, IA |
| 4 | At-risk adults without a routine doctor visit in past two years | 173 | 22 | 14% | 14% | 6%–29% | 6%–26% | Boston, MA, Victoria, TX |
| 5 | Adults without a dental visit in past year | — | — | — | 15% | — | 9%–29% | Appleton, WI, Reading, PA |
| | **PREVENTION & TREATMENT DIMENSION SUMMARY** | | | | | | | |
| 6 | Adults with a usual source of care | 57 | 62 | 79% | 79% | 56%–90% | 56%–90% | Johnstown, PA, Springfield, IL, Worcester, MA, York, PA |
| 7 | Adults with age and gender appropriate cancer screenings | — | — | — | 70% | — | 52%–79% | Springfield, MA |
| 8 | Adults with age appropriate vaccines | 130 | 16 | 35% | 35% | 23%–44% | 20%–49% | Johnson City, TN |
| 9 | Medicare beneficiaries who received at least one drug that should be avoided in the elderly | 175 | 4 | 20% | 17% | 10%–34% | 9%–30% | Mason City, IA, Rochester, MN, St. Cloud, MN |
| 10 | Medicare beneficiaries with dementia, hip/pelvic fracture, or chronic renal failure who received a prescription drug that is contraindicated for that condition | 177 | 7 | 23% | 20% | 12%–35% | 9%–31% | Grand Forks, ND |
| 11 | Risk-adjusted 30-day mortality among Medicare beneficiaries hospitalized for heart attack, heart failure, pneumonia, or stroke | 209 | 2 | 13.2% | 12.8% | 11.7%–16.5% | 11.3%–15.5% | Royal Oak, MI |
| 12 | Hospital safety composite score | 163 | 14 | 0.9 | 0.8 | 0.5–1.3 | 0.6–1.1 | 13 areas tied |
| 13 | Hospitalized patients given information about what to do during their recovery at home | 65 | 19 | 86% | 86% | 78%–92% | 79%–91% | 8 areas tied |
| 14 | Hospitalized patients who reported hospital staff always managed pain well, responded when needed help to get to bathroom or pressed call button, and explained medicines and side effects | 53 | 35 | 68% | 68% | 57%–77% | 58%–76% | Marquette, MI, Monroe, LA |
| 15 | Home health patients who get better at walking or moving around | 255 | 1 | 59% | 63% | 48%–67% | 48%–70% | Altoona, PA, Johnstown, PA |
| 16 | Home health patients whose wounds improved or healed after an operation | 65 | 54 | 89% | 89% | 82%–96% | 78%–96% | Providence, RI |
| 17 | High-risk nursing home residents with pressure sores | 127 | 65 | 6% | 6% | 2%–12% | 1%–11% | San Luis Obispo, CA |
| 18 | Long-stay nursing home residents with an antipsychotic medication | 197 | 0 | 21% | 18% | 9%–34% | 7%–32% | San Mateo County, CA |
| | **AVOIDABLE HOSPITAL USE & COST DIMENSION SUMMARY** | | | | | | | |
| 19 | Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, ages 65–74, per 1,000 beneficiaries | 41 | 2 | 29 | 27 | 10–64 | 9–57 | San Mateo County, CA |
| 20 | Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, age 75 and older, per 1,000 beneficiaries | 61 | 5 | 70 | 66 | 34–140 | 33–132 | San Luis Obispo, CA |
| 21 | Medicare 30-day hospital readmissions, rate per 1,000 beneficiaries | 155 | 0 | 34 | 27 | 10–72 | 10–56 | Honolulu, HI, Salem, OR |
| 22 | Short-stay nursing home residents readmitted within 30 days of hospital discharge to nursing home | 126 | 17 | 22% | 20% | 11%–33% | 12%–31% | Idaho Falls, ID |
| 23 | Long-stay nursing home residents hospitalized within a six-month period | 71 | 10 | 19% | 17% | 7%–35% | 5%–37% | Little Rock, AR, Salem, OR |
| 24 | Home health patients also enrolled in Medicare with a hospital admission | 188 | 19 | 17% | 16% | 13%–20% | 12%–19% | Anchorage, AK |
| 25 | Potentially avoidable emergency department visits among Medicare beneficiaries, per 1,000 beneficiaries | 67 | 38 | 185 | 181 | 111–286 | 122–265 | Santa Cruz, CA |
| 26 | Total reimbursements per enrollee (age 18-64) with employer-sponsored insurance | 22 | 46 | $4,489 | $4,569 | $2,524–$7,738 | 2720–9362 | Columbus, GA |
| 27 | Total Medicare (Parts A & B) reimbursements per enrollee | 1 | 1 | $8,854 | $8,819 | $5,391–$13,621 | 5,593–13,189 | Honolulu, HI |
| | **HEALTHY LIVES DIMENSION SUMMARY** | | | | | | | |
| 28 | Mortality amenable to health care, deaths per 100,000 population | 2 | 6 | 85 | 84 | 47–142 | 47–153 | Boulder, CO |
| 29 | Breast cancer deaths per 100,000 female population | 129 | 46 | 24 | 23 | 14.9–32.4 | 12.3–33.3 | Bend, OR |
| 30 | Colorectal cancer deaths per 100,000 population | 118 | 34 | 16.7 | 15.9 | 11.4–25.9 | 9.6–23.8 | Boulder, CO |
| 31 | Suicide deaths per 100,000 population | 16 | 48 | 12.5 | 12.9 | 5.4–25.3 | 6–29.4 | Bronx, NY |
| 32 | Infant mortality, deaths per 1,000 live births | 65 | 52 | 6.1 | 6 | 2.8–12.1 | 2.5–11.2 | San Mateo County, CA |
| 33 | Adults ages 18–64 who report fair/poor health or activity limitations because of physical, mental, or emotional problems | 87 | 38 | 25% | 25% | 19%–42% | 13%–41% | Bloomington, IL |
| 34 | Adults who smoke | 95 | 23 | 19% | 19% | 9%–31% | 7%–34% | Provo, UT, San Jose, CA |
| 35 | Adults ages 18–64 who are obese (BMI >= 30) | 29 | 111 | 28% | 28% | 17%–43% | 14%–52% | Boulder, CO |
| 36 | Percent of adults ages 18–64 who have lost six or more teeth because of tooth decay, infection, or gum disease | — | — | — | 10% | — | 2%–26% | Santa Cruz, CA |

Notes: (a) The baseline period generally reflects two years prior to the time of observation for the latest year of data available. (b) Multiple local ares may be listed in the event of ties.

## APPENDIX C. Similar and Divergent Annual Spending per Enrollee for Employer-Sponsored Insurance (age 18-64) and Medicare (age 65 and older) Populations

| Areas low on employer-sponsored insurance spending and low on Medicare spending: ratio to the all-area median | | | Areas low on employer-sponsored insurance spending and high on Medicare spending: ratio to the all-area median | | | Areas high on employer-sponsored insurance spending and low on Medicare spending: ratio to the all-area median | | | Areas high on employer-sponsored insurance spending and high on Medicare spending: ratio to the all-area median | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Local Area | Employer-Sponsored | Medicare | Local Area | Employer-Sponsored | Medicare | Local Area | Employer-Sponsored | Medicare | Local Area | Employer-Sponsored | Medicare |
| Tucson, AZ | 0.78 | 0.83 | Fort Smith, AR | 0.81 | 1.09 | Anchorage, AK | 1.83 | 0.70 | Hudson, FL | 1.23 | 1.26 |
| Redding, CA | 0.86 | 0.81 | Texarkana, AR | 0.62 | 1.17 | Contra Costa County, CA | 1.15 | 0.89 | Miami, FL | 1.10 | 1.52 |
| San Luis Obispo, CA | 0.86 | 0.78 | Macon, GA | 0.67 | 1.09 | Modesto, CA | 1.17 | 0.89 | Joliet, IL | 1.14 | 1.12 |
| Honolulu, HI | 0.77 | 0.64 | Houma, LA | 0.83 | 1.10 | Salinas, CA | 1.14 | 0.81 | Gary, IN | 1.31 | 1.18 |
| Boise, ID | 0.88 | 0.85 | Lafayette, LA | 0.83 | 1.20 | San Jose, CA | 1.24 | 0.84 | Munster, IN | 1.28 | 1.29 |
| Des Moines, IA | 0.87 | 0.84 | Lake Charles, LA | 0.87 | 1.15 | San Mateo County, CA | 1.15 | 0.78 | Terre Haute, IN | 1.18 | 1.09 |
| Dubuque, IA | 0.86 | 0.82 | Metairie, LA | 0.89 | 1.21 | Santa Cruz, CA | 1.33 | 0.75 | Camden, NJ | 1.17 | 1.12 |
| Traverse City, MI | 0.74 | 0.90 | Monroe, LA | 0.89 | 1.37 | Stockton, CA | 1.13 | 0.88 | Hackensack, NJ | 1.23 | 1.12 |
| Albuquerque, NM | 0.87 | 0.74 | New Orleans, LA | 0.81 | 1.15 | Grand Junction, CO | 1.28 | 0.70 | Newark, NJ | 1.12 | 1.13 |
| Buffalo, NY | 0.79 | 0.88 | Slidell, LA | 0.82 | 1.17 | Bloomington, IL | 1.14 | 0.86 | Paterson, NJ | 1.23 | 1.17 |
| Rochester, NY | 0.80 | 0.84 | Detroit, MI | 0.88 | 1.29 | Duluth, MN | 1.13 | 0.84 | East Long Island, NY | 1.32 | 1.11 |
| Arlington, VA | 0.85 | 0.82 | Pontiac, MI | 0.88 | 1.14 | Rochester, MN | 1.40 | 0.84 | Manhattan, NY | 1.17 | 1.13 |
| Spokane, WA | 0.85 | 0.84 | Royal Oak, MI | 0.85 | 1.23 | Binghamton, NY | 1.12 | 0.88 | Elyria, OH | 1.09 | 1.16 |
| | | | Gulfport, MS | 0.77 | 1.10 | Bismarck, ND | 1.16 | 0.87 | Wilkes-Barre, PA | 2.12 | 1.16 |
| | | | Hattiesburg, MS | 0.78 | 1.16 | Bend, OR | 1.31 | 0.70 | Amarillo, TX | 1.28 | 1.13 |
| | | | Jackson, MS | 0.82 | 1.16 | Eugene, OR | 1.11 | 0.74 | Beaumont, TX | 1.21 | 1.29 |
| | | | Meridian, MS | 0.84 | 1.25 | Medford, OR | 1.10 | 0.75 | Dallas, TX | 1.25 | 1.20 |
| | | | Oxford, MS | 0.76 | 1.13 | Rapid City, SD | 1.14 | 0.78 | Fort Worth, TX | 1.27 | 1.21 |
| | | | Johnstown, PA | 0.75 | 1.09 | Sioux Falls, SD | 1.14 | 0.88 | Houston, TX | 1.14 | 1.21 |
| | | | Pittsburgh, PA | 0.88 | 1.11 | Burlington, VT | 1.12 | 0.83 | Lubbock, TX | 1.15 | 1.11 |
| | | | Harlingen, TX | 0.85 | 1.29 | Tacoma, WA | 1.13 | 0.85 | Tyler, TX | 1.17 | 1.23 |
| | | | | | | Green Bay, WI | 1.25 | 0.87 | Victoria, TX | 1.24 | 1.16 |
| | | | | | | La Crosse, WI | 1.37 | 0.80 | Wichita Falls, TX | 1.25 | 1.22 |
| | | | | | | Madison, WI | 1.32 | 0.79 | | | |
| | | | | | | Marshfield, WI | 1.38 | 0.87 | | | |
| | | | | | | Neenah, WI | 1.20 | 0.86 | | | |
| | | | | | | Wausau, WI | 1.37 | 0.82 | | | |
| | | | | | | Casper, WY | 1.31 | 0.83 | | | |

Note: Areas of low and high spending were determined by whether hospital referral regions (HRRs) fell in the top or bottom quartile on total Medicare (Parts A & B) reimbursements per enrollee or total reimbursements per enrollee with employer-sponsored health insurance (ESI) ages 18–64. Medicare estimates reflect only the age 65+ Medicare fee-for-service population. All-HRR medians were defined separately for ESI and Medicare spending.

Data: Medicare, 2014 administrative claims via Feb. 2016 CMS Geographic Variation Public Use File. Employer-sponsored insurance spending, 2014 Truven MarketScan Database, analysis by M.Chernew, Harvard Medical School. Total per-enrollee spending estimates from a sophisticated regression model include reimbursed costs for health care services from all sources of payment including the health plan, enrollee, and any third-party payers incurred during 2014. Outpatient prescription drug charges are excluded. Enrollees with capitated plans and their associated claims are also excluded. Estimates for each HRR were adjusted for enrollees' age and sex, the interaction of age and sex, partial-year enrollment, and regional wage differences.

## APPENDIX D. Health System Performance in Select Metropolitan Areas

| | Total Population | Overall Rank | ACCESS & AFFORDABILITY | | PREVENTION & TREATMENT | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Adults ages 19–64 uninsured | Adults who went without care because of cost in the past year | Adults with age- and gender-appropriate cancer screenings | Elderly patients who received a high-risk prescription drug | Patient-centered hospital care | Home health patients who get better at walking or moving around |
| **NORTHEAST** | | | | | | | | |
| MA Boston | 4,954,744 | 26 | 5% | 8% | 78% | 10% | 67% | 61% |
| NY New York City Area | | | | | | | | |
| Bronx | 1,407,227 | 201 | 18% | 20% | 76% | 13% | 58% | 52% |
| Manhattan | 5,273,478 | 131 | 13% | 15% | 72% | 13% | 58% | 53% |
| PA Pittsburgh | 2,864,923 | 139 | 10% | 11% | 68% | 14% | 67% | 65% |
| Philadelphia Area | | | | | | | | |
| Camden | 2,801,264 | 93 | 13% | 13% | 69% | 14% | 66% | 63% |
| Philadelphia | 4,205,912 | 111 | 12% | 13% | 70% | 13% | 66% | 59% |
| **MIDWEST** | | | | | | | | |
| IL Chicago Area | | | | | | | | |
| Blue Island | 820,068 | 217 | 18% | 15% | 67% | 15% | 64% | 59% |
| Chicago | 2,696,084 | 218 | 18% | 15% | 67% | 13% | 61% | 60% |
| Evanston | 937,054 | 111 | 17% | 15% | 67% | 12% | 65% | 62% |
| Melrose Park | 1,291,179 | 98 | 15% | 14% | 68% | 13% | 65% | 61% |
| MI Detroit | 1,771,696 | 239 | 14% | 17% | 70% | 18% | 65% | 66% |
| MN Minneapolis | 3,307,543 | 9 | 9% | 10% | 73% | 12% | 70% | 56% |
| St. Paul | 1,103,848 | 2 | 8% | 9% | 75% | 11% | 71% | 57% |
| MO Kansas City | 2,516,743 | 172 | 14% | 13% | 68% | 16% | 68% | 63% |
| St. Louis | 3,358,756 | 190 | 14% | 14% | 67% | 16% | 69% | 63% |
| OH Cincinnati | 1,671,572 | 196 | 12% | 16% | 67% | 18% | 68% | 59% |
| Cleveland | 2,022,011 | 186 | 11% | 12% | 69% | 14% | 69% | 58% |
| WI Milwaukee | 2,676,401 | 75 | 11% | 13% | 72% | 13% | 69% | 60% |
| **WEST** | | | | | | | | |
| AZ Phoenix | 3,583,594 | 180 | 19% | 16% | 64% | 17% | 66% | 58% |
| CA Los Angeles Area | | | | | | | | |
| Orange County | 3,402,088 | 61 | 17% | 14% | 72% | 17% | 62% | 59% |
| Los Angeles | 10,101,795 | 161 | 22% | 16% | 70% | 16% | 62% | 63% |
| San Diego | 3,730,706 | 80 | 18% | 15% | 68% | 13% | 65% | 58% |
| San Francisco Bay Area | | | | | | | | |
| Alameda County | 1,645,869 | 21 | 11% | 13% | 76% | 12% | 60% | 63% |
| San Francisco | 1,492,590 | 7 | 10% | 11% | 76% | 12% | 64% | 63% |
| San Mateo County | 865,548 | 3 | 10% | 10% | 76% | 10% | 68% | 62% |
| CO Denver | 3,041,222 | 50 | 14% | 14% | 70% | 15% | 70% | 60% |
| NV Las Vegas | 2,158,588 | 241 | 22% | 18% | 62% | 17% | 61% | 60% |
| OR Portland | 2,782,380 | 62 | 14% | 13% | 70% | 15% | 67% | 57% |
| WA Seattle | 2,975,233 | 16 | 10% | 12% | 70% | 14% | 65% | 57% |
| **SOUTH** | | | | | | | | |
| AL Birmingham | 2,276,193 | 242 | 18% | 17% | 67% | 24% | 68% | 66% |
| AR Little Rock | 1,544,931 | 211 | 17% | 20% | 63% | 18% | 68% | 63% |
| DC District of Columbia Area | | | | | | | | |
| Washington | 2,784,266 | 79 | 10% | 11% | 74% | 14% | 60% | 64% |
| Baltimore | 2,538,985 | 95 | 9% | 11% | 74% | 14% | 63% | 64% |
| Arlington | 2,428,804 | 29 | 13% | 14% | 76% | 13% | 65% | 61% |
| FL Fort Lauderdale | 2,975,176 | 182 | 24% | 21% | 66% | 15% | 61% | 62% |
| Orlando | 3,816,144 | 250 | 24% | 20% | 69% | 17% | 64% | 65% |
| Miami | 3,309,191 | 261 | 29% | 23% | 66% | 18% | 67% | 68% |
| Tampa Bay Area | | | | | | | | |
| Clearwater | 495,196 | 158 | 21% | 14% | 68% | 16% | 68% | 65% |
| St. Petersburg | 431,227 | 221 | 21% | 14% | 68% | 17% | 61% | 65% |
| Tampa | 1,446,237 | 260 | 21% | 16% | 66% | 17% | 63% | 63% |
| GA Atlanta | 6,532,380 | 189 | 21% | 18% | 73% | 19% | 66% | 63% |
| KY Louisville | 1,767,243 | 233 | 13% | 16% | 67% | 19% | 70% | 66% |
| LA New Orleans | 683,344 | 237 | 21% | 19% | 68% | 20% | 66% | 58% |
| MS Jackson | 1,043,337 | 301 | 20% | 19% | 66% | 22% | 69% | 66% |
| NC Charlotte | 2,594,451 | 168 | 19% | 20% | 69% | 19% | 67% | 62% |
| Durham | 1,341,731 | 200 | 19% | 17% | 71% | 19% | 67% | 62% |
| Raleigh | 2,135,362 | 164 | 18% | 16% | 76% | 19% | 68% | 61% |
| TN Memphis | 1,783,444 | 278 | 20% | 17% | 66% | 23% | 68% | 61% |
| Nashville | 2,890,844 | 245 | 16% | 16% | 67% | 21% | 68% | 63% |
| TX Dallas | 5,176,744 | 236 | 24% | 18% | 67% | 21% | 69% | 54% |
| Fort Worth | 2,287,409 | 251 | 23% | 16% | 68% | 23% | 70% | 54% |
| Houston | 6,963,484 | 252 | 26% | 18% | 67% | 20% | 68% | 54% |
| San Antonio | 2,877,559 | 219 | 25% | 21% | 65% | 18% | 68% | 52% |

| | | AVOIDABLE HOSPITAL USE & COST | | | | HEALTHY LIVES | |
|---|---|---|---|---|---|---|---|
| | | Medicare admissions for ambulatory care–sensitive conditions, ages 65–74, per 1,000 beneficiaries | Medicare 30-day hospital readmissions, per 1,000 beneficiaries | Total reimbursements per enrollee (age 18-64) with employer-sponsored insurance | Total Medicare (Parts A & B) reimbursements per enrollee | Mortality amenable to health care, per 100,000 population | Adults with poor health-related quality of life |
| **NORTHEAST** | | | | | | | |
| MA | Boston | 28 | 38 | $4,729 | $9,047 | 58 | 22% |
| NY | New York City Area | | | | | | |
| | Bronx | 41 | 26 | $4,793 | $9,862 | 113 | 36% |
| | Manhattan | 25 | 30 | $5,172 | $9,798 | 85 | 25% |
| PA | Pittsburgh | 36 | 19 | $3,860 | $9,678 | 85 | 27% |
| | Philadelphia Area | | | | | | |
| | Camden | 29 | 40 | $5,167 | $9,766 | 81 | 23% |
| | Philadelphia | 28 | 31 | $4,172 | $9,605 | 91 | 26% |
| **MIDWEST** | | | | | | | |
| IL | Chicago Area | | | | | | |
| | Blue Island | 31 | 48 | $4,667 | $10,029 | 101 | 26% |
| | Chicago | 38 | 46 | $4,363 | $10,618 | 102 | 26% |
| | Evanston | 16 | 33 | $4,397 | $9,042 | 96 | 25% |
| | Melrose Park | 24 | 36 | $4,592 | $9,144 | 80 | 23% |
| MI | Detroit | 50 | 53 | $3,888 | $11,242 | 113 | 29% |
| MN | Minneapolis | 20 | 15 | $4,647 | $7,560 | 55 | 20% |
| | St. Paul | 17 | 13 | $4,648 | $7,464 | 54 | 20% |
| MO | Kansas City | 27 | 34 | $4,624 | $8,906 | 81 | 24% |
| | St. Louis | 33 | 35 | $3,814 | $9,087 | 95 | 27% |
| OH | Cincinnati | 33 | 27 | $4,208 | $9,318 | 92 | 28% |
| | Cleveland | 35 | 32 | $4,436 | $9,587 | 99 | 28% |
| WI | Milwaukee | 23 | 27 | $5,833 | $8,423 | 76 | 28% |
| **WEST** | | | | | | | |
| AZ | Phoenix | 17 | 21 | $4,388 | $7,877 | 72 | 27% |
| CA | Los Angeles Area | | | | | | |
| | Orange County | 14 | 15 | $4,540 | $9,109 | 58 | 23% |
| | Los Angeles | 22 | 21 | $4,622 | $10,617 | 79 | 31% |
| | San Diego | 15 | 16 | $4,315 | $8,099 | 65 | 26% |
| | San Francisco Bay Area | | | | | | |
| | Alameda County | 19 | 17 | $4,734 | $7,837 | 67 | 25% |
| | San Francisco | 15 | 17 | $4,539 | $7,090 | 57 | 23% |
| | San Mateo County | 9 | 13 | $5,091 | $6,785 | 50 | 20% |
| CO | Denver | 16 | 15 | $4,791 | $7,940 | 58 | 24% |
| NV | Las Vegas | 24 | 23 | $4,102 | $9,098 | 93 | 27% |
| OR | Portland | 19 | 13 | $4,572 | $6,737 | 61 | 26% |
| WA | Seattle | 14 | 19 | $4,369 | $7,012 | 56 | 26% |
| **SOUTH** | | | | | | | |
| AL | Birmingham | 33 | 31 | $3,846 | $9,268 | 115 | 32% |
| AR | Little Rock | 33 | 37 | $3,223 | $8,687 | 120 | 32% |
| DC | District of Columbia Area | | | | | | |
| | Washington | 27 | 37 | $3,715 | $8,312 | 86 | 21% |
| | Baltimore | 32 | 45 | $3,760 | $9,273 | 102 | 24% |
| | Arlington | 16 | 28 | $3,768 | $7,128 | 50 | 17% |
| FL | Fort Lauderdale | 23 | 29 | $4,353 | $11,150 | 70 | 25% |
| | Orlando | 32 | 33 | $4,516 | $10,242 | 80 | 29% |
| | Miami | 37 | 25 | $4,848 | $13,189 | 75 | 26% |
| | Tampa Bay Area | | | | | | |
| | Clearwater | 25 | 24 | $4,730 | $11,206 | 83 | 27% |
| | St. Petersburg | 33 | 30 | $4,232 | $11,163 | 83 | 27% |
| | Tampa | 30 | 27 | $4,460 | $10,679 | 94 | 31% |
| GA | Atlanta | 26 | 25 | $3,495 | $8,426 | 88 | 24% |
| KY | Louisville | 39 | 35 | $4,056 | $9,077 | 103 | 31% |
| LA | New Orleans | 40 | 21 | $3,557 | $9,983 | 113 | 28% |
| MS | Jackson | 40 | 39 | $3,596 | $10,041 | 144 | 29% |
| NC | Charlotte | 28 | 26 | $4,612 | $8,424 | 93 | 27% |
| | Durham | 35 | 30 | $4,127 | $8,199 | 99 | 30% |
| | Raleigh | 29 | 31 | $4,153 | $8,446 | 93 | 25% |
| TN | Memphis | 36 | 39 | $3,771 | $9,413 | 140 | 30% |
| | Nashville | 39 | 32 | $4,343 | $9,036 | 103 | 31% |
| TX | Dallas | 29 | 29 | $5,496 | $10,463 | 91 | 23% |
| | Fort Worth | 31 | 25 | $5,587 | $10,556 | 95 | 26% |
| | Houston | 30 | 28 | $5,041 | $10,524 | 95 | 25% |
| | San Antonio | 24 | 22 | $4,268 | $9,232 | 89 | 28% |

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