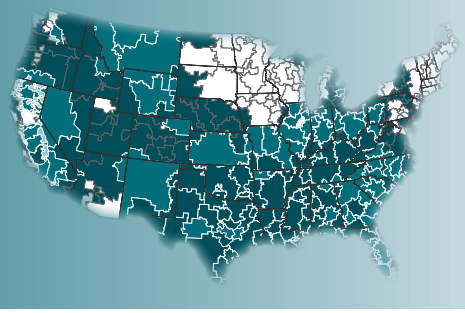
THE COMMONWEALTH FUND

Case Studies of
Regional Health Care Improvement

April 2014



Opportunity for Regional Improvement: Three Case Studies of Local Health System Performance

Douglas McCarthy, Sarah Klein, and Alexander Cohen
The Commonwealth Fund and the Institute for Healthcare Improvement

ABSTRACT: Case studies of three U.S. regions that ranked relatively high on the Commonwealth Fund's *Scorecard on Local Health System Performance, 2012*, despite greater poverty compared with peers, revealed several common themes. In these communities, multistakeholder collaboration was an important factor in achieving community health or health system goals. There were also mutually reinforcing efforts by health care providers and health plans to improve the quality and efficiency of care, regional investment and cooperation to apply information technology and engage in community outreach, and a shared commitment to improve the accessibility of care for underserved populations. State policy and national and local funding programs also played a role in expanding access to care and providing resources for innovation. The experiences of these regions suggest that stakeholders can leverage their unique histories, assets, and values to influence the market, raise social capital, and nudge local health systems to function more effectively.

The mission of The Commonwealth Fund is to promote a high performance health care system. The Fund carries out this mandate by supporting independent research on health care issues and making grants to improve health care practice and policy. 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.

For more information about this study, please contact:

Douglas McCarthy, M.B.A.
Senior Research Director
The Commonwealth Fund
DM@cmwf.org

To learn more about new publications when they become available, visit the Fund's website and register to receive Fund email alerts.

Commonwealth Fund pub. 1737
Vol. 4

INTRODUCTION

Research has documented pervasive geographic variations across the United States in the accessibility, quality, and use of health care services, as well as in health outcomes and disparities.[1] The Commonwealth Fund's *Scorecard on Local Health System Performance, 2012,* estimated substantial gains if all regions of the country performed as well as the top-performing regions.[2] While many communities are engaged in efforts to build local capacity for improvement,[3] they have unique histories and circumstances with complex and evolving relationships among stakeholders with varying characteristics. Nevertheless, regions and communities may find it useful to learn from each other's experiences, not only to identify promising approaches to common challenges but also to understand how particular circumstances influence a community's choices and success.

With this goal in mind, we conducted case studies of three regions—Western New York, West Central Michigan, and Southern Arizona (Exhibit 1)—that

performed relatively well overall and on particular dimensions of performance on the *Scorecard,* which assessed 43 indicators representing health care access, quality, efficiency, and outcomes for 306 U.S. regions (Exhibit 2).* Because income and poverty levels are associated with regional health system performance, we wanted to study regions with greater socioeconomic challenges than other top-performing areas. The three regions we selected had the following characteristics in common:

- They encompass diverse midsize cities. Buffalo, N.Y., Grand Rapids, Mich., and Tucson, Ariz., are health care hubs for the second-largest metropolitan areas in their respective states.
- They have higher rates of poverty than other top-performing regions across the country with populations of more than 1 million.[4] (Among the three study regions, only Southern Arizona had a poverty rate that was higher than the median for all regions.)
- They stand out for higher performance on some indicators, including relatively lower health care costs for commercially insured adults and Medicare beneficiaries (Exhibit 3).

While the focus of this series is on regions with larger populations, it builds on earlier Commonwealth Fund–sponsored case studies of high-performing rural areas.[5]

* The unit of analysis for the *Scorecard on Local Health System Performance, 2012,* is the hospital referral region (HRR) defined by the *Dartmouth Atlas of Health Care* to reflect travel and referral patterns for complex care among Medicare beneficiaries. HRRs have been widely used in health services research.

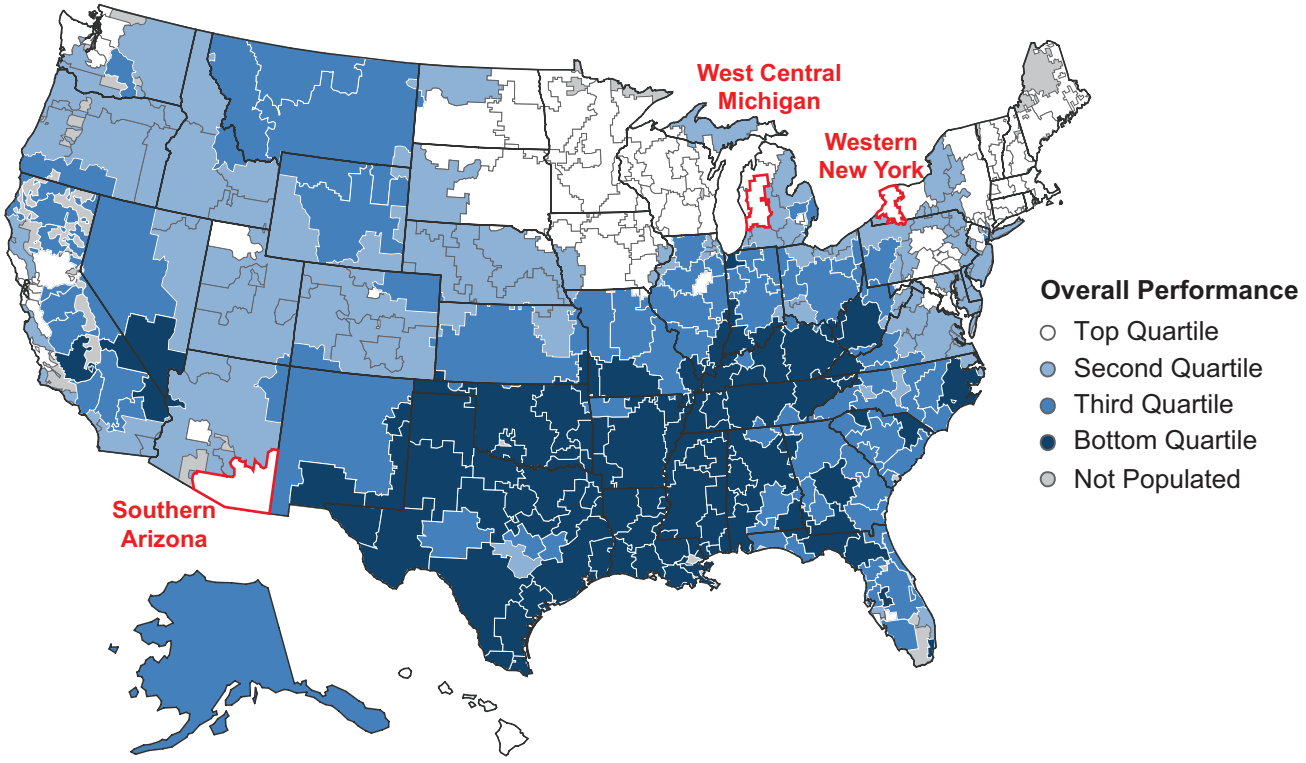
FINDINGS

The case study regions share some characteristics that may allow for better performance but most of which are relatively fixed, at least in the short term (Appendices A, B and C). For instance, educational institutions played an important supporting role in the study regions, both in health care workforce development and as a source of expertise for community health improvement initiatives. The following discussion includes several other factors that emerged from a synthesis of the case studies (Appendix D). The case studies were based on insights gained from interviews with a wide range of local stakeholders, supplemented by analysis of secondary sources.

The social cohesion and pride of place within the study communities seems to enable different constituencies to unify around the pursuit of ambitious goals. In Greater Tucson, nonprofits working in concert with politicians, academic researchers, physicians, and faith-based groups have set out to make the city the healthiest in the nation by developing mutually reinforcing programs to improve the health of the population. These efforts have been accompanied by changes in local policies and investment in infrastructure to support healthy lifestyles. In Western New York, local leaders hope to reverse decades of economic decline by enhancing the region's reputation for delivering high-quality, complex care and by improving the health of the local population, thereby making the area more attractive to new employers. Toward that end, a "coalition of coalitions" has convened providers, patients, payers, educators, government, religious, and other community leaders to educate and motivate residents to adopt healthy lifestyles and help providers implement best care practices.

The medium population size of these regions may be a factor in these collaborations as stakeholders know one another and can more easily engage in both formal and informal opportunities for building mutual influence. In West Central Michigan, hospitals and employers have a long history of working together to understand one another's interests through a regional planning process that includes state-delegated authority

Exhibit 1. Location and Relative Performance of the Case Study Sites



Source: The Commonwealth Fund Scorecard on Local Health System Performance, 2012.

Exhibit 2. Quartile Rankings on the Commonwealth Fund's Scorecard on Local Health System Performance in Case Study Regions

	Western New York (Buffalo)		West Central Michigan (Grand Rapids)		Southern Arizona (Tucson)	
Performance Dimension	Quartile	Rank	Quartile	Rank	Quartile	Rank
Overall (among 306 HRRs)	1	54	1	43	1	69
Access	1	11	2	86	2	133
Prevention and Treatment	1	69	1	14	1	69
Avoidable Use and Cost	2	113	1	65	1	42
Healthy Lives	2	100	2	100	2	88

Note: Performance generally represents the time period 2008–2010.
Source: The Commonwealth Fund Scorecard on Local Health System Performance, 2012.

GRAND RAPIDS AND WEST CENTRAL MICHIGAN: A CULTURE OF STEWARDSHIP

The region encompassing Michigan's second-largest city, Grand Rapids (population 190,000), has benefitted from local philanthropists' investment in the medical infrastructure, as well as employer-driven efforts to consolidate health care resources, allowing local hospitals and health systems to offer a breadth of services that are unusual for the size of the community. Leaders say the region's culture reflects the values of self-reliance and prudent use of resources inherited from Dutch immigrants. The conservative culture makes practicing evidence-based medicine second nature for area physicians, contributing to lower health care costs and making the area an attractive place to do business.

See: S. Klein, D. McCarthy, and A. Cohen, *Grand Rapids and West Central Michigan: Pursuing Health Care Value Through Regional Planning, Cooperation, and Investment* (New York: The Commonwealth Fund, April 2014), http://www.commonwealthfund.org/Content/Publications/Case-Studies/2014/Apr/Grand-Rapids-and-West-Central-Michigan-Pursuing-Health-Care-Value-Through-Regional-Planning.aspx.

to review and recommend whether the state should grant "certificates-of-need," which authorize local providers to purchase expensive new equipment or offer intensive new services.[6] This activism has led community leaders to champion the merger of two competing hospitals to avoid a "medical arms race" as well as to recommend that competitors share a PET (positron emission tomography) scanner and avoid duplicating heart transplant services. The hospital merger overcame antitrust concerns in part because of the community's history of accountability and a commitment by the merged entity to ongoing substantial funding of community health programming.

Mutually reinforcing efforts by health care providers and health plans to improve the quality and efficiency of care

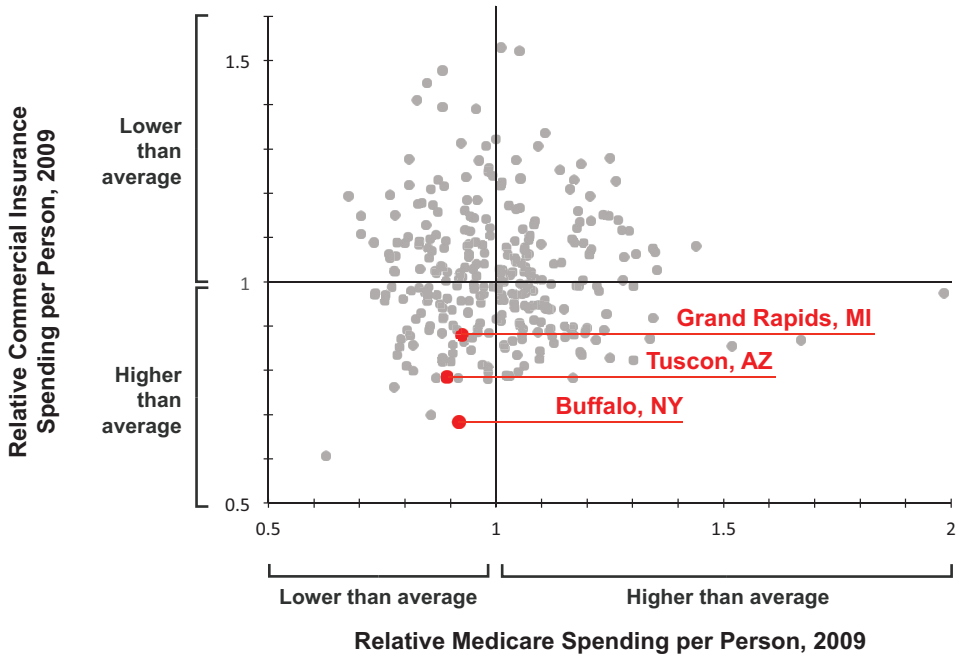
Regional and state health insurers in Western New York and West Central Michigan have designed performance incentive programs that use common metrics to focus on improvement and are designed to shore up the primary care infrastructure. High-performing primary care practices in Michigan, for example, can increase their revenue by as much as 30 percent by achieving performance benchmarks for high-quality, efficient care delivery.[7] A collective of primary care practices in Western New York used performance incentives to hire health coaches for patients and practice coaches to help physicians improve care for patients with chronic conditions. Notably, local stakeholders did not identify performance incentives alone as a major driver of

BUFFALO AND WESTERN NEW YORK: SPURRING AN ECONOMIC COMEBACK

Buffalo, New York State's second-most populous city (261,310 residents), has suffered economic setbacks since the 1950s. Efforts to reverse the region's fortunes have focused on recruiting businesses and revitalizing older ones. The region's health care ambitions, driven by state policy and community action, are unfolding along two fronts. The first is to enhance the region's reputation for delivering high-quality, complex care, thereby attracting patients who might otherwise go to nearby cities for treatment. A second is to improve the health of the population in hopes of further lowering health care costs, thereby making the region more attractive to new employers. Achieving these goals has been the focus of a number of county-level and regional coalitions.

See: S. Klein, D. McCarthy, and A. Cohen, *Buffalo and Western New York: Collaborating to Improve Health System Performance by Leveraging Social Capital* (New York: The Commonwealth Fund, April 2014), http://www.commonwealthfund.org/Content/Publications/Case-Studies/2014/Apr/Buffalo-and-Western-New-York-Collaborating-to-Improve-Health-System-Performance.aspx.

Exhibit 3. Commercially Insured and Medicare Spending per Enrollee, Relative to U.S. Median Spending for Each Population



Data sources: Commercial—2009 Thomson Reuters MarketScan Database, analysis by M.Chernew, Harvard Medical School. Medicare—2009 Medicare claims as reported by the Institute of Medicine. Ratio lower than 1.0 indicates percent lower than average; ratio higher than 1.0 indicates percent higher than average. Median spending determined separately for the commercially insured and Medicare populations.

regional performance (Appendix E), suggesting that incentives operated as part of a larger web of accountability to engage and empower physicians.

Market and structural characteristics also likely play a factor in regional performance. The penetration of health maintenance organizations (HMOs) in all three hospital referral regions was nearly double the national median, helped in part by the use of managed care in state Medicaid programs. Previous research has associated greater HMO penetration with lower use of services and costs in local markets.[8] In the study sites, HMOs have provided a depth of experience with

GREATER TUCSON: MAKING HEALTH A COMMUNITY PRIORITY

With plenty of sunshine and temperate winters, the desert oasis that encompasses Tucson, Ariz. (population 521,000), seems to encourage outdoor activity and healthy behavior. Residents say opportunities abound to share in one another's cultural traditions, creating a sense of community that is further reinforced by a rich array of nonprofit organizations that work together to identify shared values, spur economic development, and tackle health challenges as the local population grows. In 2003, the city's mayor took on a challenge from U.S. Surgeon General to make the community a model of a healthy metropolis. One manifestation of these efforts is the construction of a 131-mile "loop" trail that provides opportunities for residents to bike, run, and walk; the trail is expected to generate $9.40 in economic benefit for every dollar invested in the project.[9]

See: S. Klein, D. McCarthy, and A. Cohen, *Tucson and Southern Arizona: A Desert Region Pursuing Better Health and Health System Performance* (New York: The Commonwealth Fund, April 2014), http://www.commonwealthfund.org/Content/Publications/Case-Studies/2014/Apr/Tucson-and-Southern-Arizona-A-Desert-Region-Pursuing-Better-Health-and-Health-System-Performance.aspx.

risk-based contracting and care management techniques. The availability of primary care physicians, at per capita rates close to the regional median in all three sites, may have helped patient-centered medical home initiatives. Virtual physician organizations such as independent practice associations and physician–hospital organizations are important in Western New York and West Central Michigan, while providers in Southern Arizona appear to have internalized the principles of managed care through years of market conditioning.

Health care providers in all three areas have been self-motivated to innovate as well. Many have been ahead of the curve in adopting or advancing new models of care. West Central Michigan had one of the nation's first hospices, which began accepting patients in 1981, and was one of the first areas of the country to use hospitalists, which helped to standardize care processes. More recently, the region's medical education programs have emphasized the importance of team-based care. In both Western New York and Southern Arizona, physicians have led the formation of accountable care organizations (ACOs). The ACOs are demonstrating how to "do managed care right"—using data to support intelligent risk-profiling and targeting those with high needs and at risk of costly care.

Regional investment and cooperation to apply information technology and engage community organizations

Investments in regional health information exchanges (HIEs)—made possible through cooperation among competitors—have been significant in two regions and may have helped to reduce fragmentation and duplication of services. Western New York's regional HIE, created by local health plans and hospitals with the help of state and federal grants, is supporting the implementation of disease registries and decision-support tools to improve clinical care and workflow in physician offices. In West Central Michigan, three competing health systems invested in building a community HIE that is used by physicians to automate health care referrals and access hospital discharge information and laboratory test results to improve care coordination and transitions. Tucson-area providers have established innovative teleconsultation programs that improve access to care in outlying areas and reduce costly emergency helicopter transports.

Other ways regions have employed community cooperation and outreach include: programs that use trained volunteers to provide evidence-based chronic disease management programs in collaboration with area providers; deployment of community health workers in various roles, including safe and reliable care transitions from the hospital to the community; and convening of community collaboratives to reduce health disparities and improve health outcomes in minority communities.

Shared commitment to improving the accessibility of care for underserved populations

All three communities demonstrate a strong commitment to meeting the needs of the poor and underserved. In West Central Michigan, local philanthropists and hospitals joined Kent County more than a decade ago to create a nonprofit that provided low-income residents with access to outpatient care and prescription medicine. Following coverage expansions under the Affordable Care Act, the program is evolving to help residents use their health plan more effectively and avoid using hospital emergency departments. Hospitals and community-based safety-net providers in Western New York formed a coalition to identify geographic areas in need of services as well as to provide mutual support for improving care coordination and engaging with policymakers. In Southern Arizona, where substance abuse and mental illness are significant challenges, local voters approved bond initiatives to finance the development of two new behavioral health centers that provide a full continuum of services for patients, from triage and assessment in an emergency department to inpatient and outpatient care.

DISCUSSION

The findings from these case studies are generally consistent with other research linking contextual factors—such as leadership, culture, social capital, and aligned incentives—to geographic health system performance.[10] The case studies also build on prior literature by offering insight into the ways that communities engage in regional improvement.[11] Leaders in the study regions reported results of programs that reduced hospitalizations, emergency department visits, and medication costs. These programs are indicative of broader performance improvement pathways that may contribute to lower wage-adjusted health care costs in the study regions (Exhibit 3). Costs also are influenced by factors such as regional demographics and health status.[12] Yet, rates of premature mortality and of self-reported fair or poor health status were close to the median for all regions in Western New York and Southern Arizona (Appendix A), suggesting that lower health care costs were not attributable to healthier populations in those regions. (The premature mortality rate was somewhat lower than the median in West Central Michigan.) Moreover, leaders in all three regions recognize the opportunity to lower costs further through the promotion of better community health.[13]

Each of these communities has been savvy about leveraging local philanthropy, state grants, and national funding opportunities to enhance and expand their efforts. Public health officials in Southern Arizona, for example, emphasized the importance of federal grants in supplementing community resources to facilitate community health partnerships that address the social determinants of health. State policies supported efforts to improve performance in various ways, such as expanding access to Medicaid coverage and fostering the "right-sizing" of hospital services in New York State, delegating authority for local certificate-of-need reviews in West Central Michigan, and providing the mandate and startup funding for building a statewide telemedicine infrastructure in Arizona. State policy also supports local efforts to improve public health: all three regions are in states with smoke-free worksite policies, though their rates of smoking vary markedly.

It remains to be seen whether local stakeholders' objectives for health system development can be accomplished while retaining or enhancing their reputations as lower-cost regions. Medicare costs have been rising faster than the national median in West Central Michigan, reflecting greater per capita use of services than in the past. Local leaders are concerned about competitive market pressures that are testing the bounds of community accountability. Similarly, the creation of preferred networks of providers aligned with particular health systems in Western New York may change the dynamics of market cooperation there.

The case study regions offer lessons in how civic-minded leaders can build social capital by appealing to stakeholders' sense of pride in their communities and by linking health and health care to a common desire to overcome economic challenges and advance the well-being of their populations.[14] The Commonwealth Fund Commission on a High Performance Health System proposed the creation of 50 to 100 voluntary "health improvement communities" that bring together providers, payers, and other local stakeholders to redesign payment policy, enhance primary care access, leverage health information technology, and create accountable care arrangements to improve care for patients with high-cost chronic illnesses.[15] Such initiatives might reduce health care spending by up to $184 billion over 10 years, according to an estimate.[16] While the case study regions are unique and their experiences cannot be replicated wholesale, they offer insights into pathways that other communities might follow to foster collaboration and the pursuit of economically and socially desired goals for health system improvement.

NOTES

1 For a recent review of the literature, see: W. G. Manning, E. C. Norton, and A. S. Wilk, *Explaining Geographic Variation in Health Care Spending, Use and Quality, and Associated Methodological Challenges* (Institute of Medicine Committee on Geographic Variation in Health Care and Promotion of High Value Care, May 18, 2012). Also see: The Dartmouth Atlas of Health Care (Hanover, N.H.: Dartmouth Institute for Health Policy and Clinical Practice); County Health Rankings (Madison, Wis.: University of Wisconsin Population Health Institute); and C. Schoen, D. C. Radley, P. Riley, J. A. Lippa, J. Berenson, C. Dermody, and A. Shih, *Health Care in the Two Americas: Findings from the Scorecard on State Health System Performance for Low-Income Populations, 2013* (New York: The Commonwealth Fund, Sept. 2013).

2 D. C. Radley, S. K. H. How, A.-K. Fryer, D. McCarthy, and C. Schoen, *Rising to the Challenge: Results from a Scorecard on Local Health Performance, 2012* (New York: The Commonwealth Fund, March 2012). Unless otherwise indicated, regional data come from the *Local Scorecard* or supplemental data prepared by the Scorecard team. The "All HRR Median" reported in the scorecard is not the same as "U.S. median," but is rather a "median among all regions."

3 Network for Regional Health Improvement, *Regional Health Improvement Collaboratives: Essential Elements for Successful Healthcare Reform* (Pittsburgh: Jewish Healthcare Foundation and Pittsburgh Regional Health Initiative); D. P. Scanlon, J. Beich, J. A. Alexander et al., "The Aligning Forces for Quality Initiative: Background and Evolution from 2005 to 2012," *American Journal of Managed Care,* Sept. 2012 18(6 Suppl.):s115–s125; A. M. Rohan, B. C. Booske, and P. L. Remington, "Using Wisconsin County Health Rankings to Catalyze Community Health Improvement," *Journal of Public Health Management and Practice,* Jan.–Feb. 2009 15(1):24–32; Institute for Healthcare Improvement, The IHI Triple Aim Improvement Community; YMCA Activate America, *Pioneering Healthier Communities: Lessons Learned and Leading Practices* (Chicago: YMCA of the USA, 2006); and Centers for Disease Control and Prevention, "Racial and Ethnic Approaches to Community Health (REACH)," (Atlanta: CDC), http://www.cdc.gov/nccdphp/dch/programs/reach/index.htm.

4 Poverty was defined as percentage of people with family income below the federal poverty level. One other top-performing region of greater than 1 million people—Rochester, N.Y.—also had a poverty rate comparable to the poverty rates in the Buffalo and Grand Rapids regions.

5 D. McCarthy and A. Cohen, *The Colorado Beacon Consortium: Strengthening the Capacity for Health Care Delivery Transformation in Rural Communities* (New York: The Commonwealth Fund, April 2013); and D. McCarthy, R. Nuzum, S. Mika et al., *The North Dakota Experience: Achieving High-Performance Health Care Through Rural Innovation and Cooperation* (New York: The Commonwealth Fund, May 2008).

6 According to the American Health Planning Association, "Health services policymakers have used certificate-of-need (CON) regulation to help shape the health care system for more than three decades. The rationale for imposing market entry controls is that regulation, grounded in community-based planning, will result in more appropriate allocation and distribution of health care resources and, thereby, help ensure access to care, maintain or improve quality, and help control health care capital spending." The U.S. Department of Justice and the Federal Trade Commission have argued against CON regulation on anticompetitive grounds; see: Improving Health Care: A Dose of Competition: A Report by the Federal Trade Commission and the Department of Justice, July 2004, For a response, see: American Health Planning Association, "The Federal Trade Commission & Certificate of Need Regulation: An AHPA Critique" (Falls Church, Va.: AHPA, Jan. 2005), http://www.ahpanet.org/files/AHPAcritiqueFTC.pdf.

7 B. F. VanderLaan, *A Legacy of Primary Care Support Underscores Priority Health's Leadership in Accountable Care* (Grand Rapids, Mich.: Priority Health, July 2013); and D. A. Share and M. H. Mason, "Michigan's Physician Group Incentive Program Offers a Regional Model for Incremental 'Fee for Value' Payment Reform," *Health Affairs,* Sept. 2012 31(9):1993–2001.

8 J. C. Robinson, "Decline in Hospital Utilization and Cost Inflation Under Managed Care in California," *Journal of the American Medical Association,* Oct. 2, 1996 276(13): 1060–64; D. J. Gaskin and J. Hadley, "The Impact of HMO Penetration on the Rate of Hospital Cost Inflation, 1985–1993," *Inquiry,* Fall 1997 34(3):205–16; G. F. Anderson, N. Zhang, and C. Worzala, "Hospital Expenditures and Utilization: The Impact of HMOs," *American Journal of Managed Care*, July 1999 5(7):853–64; and M. A. Morrisey, "Competition in Hospital and Health Insurance Markets: A Review and Research Agenda," *Health Services Research*, April 2001 36(1 Pt. 2):191–221.

9 Pima County, Ariz., *The Loop: Economic, Environmental, Community, and Health Impact Study*.

[10] S. Silow-Carroll and G. Moody, *Lessons from High- and Low-Performing States for Raising Overall Health System Performance* (New York: The Commonwealth Fund, May 2011); J. Williams, "Geographic Variations in Health Care Utilization: Effects of Social Capital and Self-Interest, and Implications for U.S. Medicare Policy," *Socioeconomic Review*, 2012 10(2):317–42; and C. Simon, "Geographic Variation in Cost, Quality and Population Health," presentation at the AcademyHealth Annual Research Meeting, Baltimore, Md., June 23, 2013.

[11] S. T. Roussos and S. B. Fawcett, "A Review of Collaborative Partnerships as a Strategy for Improving Community Health," *Annual Review of Public Health,* 2000 21:369–402; E. Wagner, B. Austin and C. Coleman, *It Takes a Region: Creating a Framework to Improve Chronic Disease Care* (Oakland: California Healthcare Foundation, Nov. 2006); and L. R. Hearld and J. A. Alexander, "Governance Processes and Change Within Organizational Participants of Multi-Sectoral Community Health Care Alliances: The Mediating Role of Vision, Mission, Strategy Agreement and Perceived Alliance Value," *American Journal of Community Psychology,* March 2014 53(1–2):185–97.

[12] Given its large population of Hispanic Americans, the Tucson region's performance on measures of healthy lives may be influenced by the so-called "Hispanic paradox," whereby Hispanic Americans experience better health outcomes than would be expected given their generally lower socioeconomic status compared with non-Hispanic white Americans; see: J. M. Ruiz, P. Steffen and T. B. Smith, "Hispanic Mortality Paradox: A Systematic Review and Meta-Analysis of the Longitudinal Literature," *American Journal of Public Health*, March 2013 103(3):e52–e60.

[13] Grand Valley State University, "Health Check: Analyzing Trends in West Michigan"; L. Tumiel-Berhalter, C. Crespo, and D. Rowe, *The Western New York Public Health Alliance Health Risk Assessment Update, 2004–2005* (Buffalo: State University of New York, University at Buffalo, Population Health Observatory, 2005); Erie County, New York, "2014–2017 Community Health Assessment"; and University of Arizona College of Public Health, *Pima County Health Needs Assessment*, March 2012.

[14] Social capital refers to "resources stored in human relationships" (X. de Souza Briggs, "Social Capital and the Cities: Advice to Change Agents," presentation to an International Workshop on Community Building, The Rockefeller Foundation, Bellagio, Italy, Oct. 1997). Also see: R. Putnam, *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).

[15] D. Blumenthal, "Performance Improvement in Health Care—Seizing the Moment," *New England Journal of Medicine*, April 26, 2012 366(17):1953–55.

[16] Commission on a High Performance Health System, *The Performance Improvement Imperative: Utilizing a Co-ordinated, Community-Based Approach to Improve Care and Lower Costs for Chronically Ill Patients* (New York: The Commonwealth Fund, April 2012).

Appendix A. Demographic, Market, and Health Indicators for Study Regions (HRRs)

	Data source	Data years	Western New York (Buffalo)	West Central Michigan (Grand Rapids)	Southern Arizona (Tucson)	Nationwide distribution among 306 HRRs				
						Minimum	25th percentile	Median	75th percentile	Maximum
Demographic characteristics										
Total population	American Community Survey, U.S. Census	2007–2011	1,376,405	1,164,560	1,298,642	129,587	347,789	616,212	1,198,114	9,991,405
Age under 18			21.9	26.0	23.3	15.1	22.4	23.7	25.0	33.7
Age 65 and older			15.7	12.0	15.2	7.5	12.0	13.6	15.2	34.5
Race[1]										
White	American Community Survey, U.S. Census	2007–2011	83.7	86.4	78.5	24.1	71.5	82.6	88.9	96.8
Black or African American			10.6	5.9	3.3	0.3	2.6	6.5	15.0	51.6
Other race or multiracial			5.7	7.7	18.2	1.7	4.6	7.4	13.0	73.6
Ethnicity										
Hispanic or Latino	American Community Survey, U.S. Census	2007–2011	4.0	7.8	35.4	0.9	3.3	6.6	15.6	89.9
Non-Hispanic, white			81.5	82.4	55.4	8.3	59.5	74.4	85.4	96.1
Non-Hispanic, black or African American			10.3	5.7	3.0	0.3	2.5	6.3	14.8	51.3
Non-Hispanic, other race or multiracial			4.2	4.2	6.2	0.9	3.1	4.1	6.5	66.9
Median household income			$50,116	$51,371	$48,049	$31,000	$44,498	$49,276	$57,605	$106,605
Percent below federal poverty level (FPL)			14.2	14.8	17.9	4.9	12.1	14.8	17.2	36.8
Percent below 200% FPL			31.4	33.7	38.6	14.2	29.4	34.5	38.7	64.0
High school education or less, adults over age 25			44.0	43.4	38.6	21.3	40.4	45.3	50.7	66.8
Bachelor's degree or higher			26.3	25.7	27.1	13.1	19.9	24.1	28.7	54.4
Market characteristics										
Hospital beds per 1,000 population	Dartmouth Atlas	2006	2.6	2.1	2.0	1.4	2.1	2.4	2.9	4.7
Hospital market concentration[2]	Medicare Provider of Service File	2010	1,616 (moderate)	3,748 (high)	1,563 (moderate)	149	1,515	2,541	3,980	10,000
Primary care physicians per 100,000 residents	Dartmouth Atlas	2006	68.0	66.6	66.7	43.9	62.4	68.8	77.5	117.0
Specialty physicians per 100,000 residents			118.6	107.1	124.3	68.3	106.5	117.5	130.4	215.0
Market share of top three insurers (commercial)	Managed Market Surveyor, Healthleaders-Interstudy[3]	2010	73.0	84.2	65.1	39.3	68.4	74.6	80.7	93.6
HMO penetration (among all payers)			30.5	31.4	30.2	0.2	7.6	16.5	23.1	56.6
Total reimbursements per commercially insured patient under age 65	Commercial claims[4]	2009	$2,228	$2,919	$2,603	$2,014	$3,010	$3,314	$3,617	$5,068
Total standardized Medicare (Parts A & B) spending per beneficiary	IOM analysis of Medicare claims[5]	2009	$7,800	$7,857	$7,556	$5,313	$7,514	$8,483	$9,271	$16,825
Percent change in standardized Medicare spending per beneficiary (2007–2011)	IOM analysis of Medicare claims[5]	2007–2011	11.8	18.8	9.2	–9.4	0.1	10.5	14.5	24.9
Health indicators and outcomes										
Mortality amenable to health care, deaths per 100,000 population	CDC—NVSS (Hempstead)	2007–2009	92.3	82.9	91.2	51.5	78.9	91.3	108.8	169.0
Percent of adults who smoke	Behavioral Risk Factor Surveillance System	2009–2010	20.7	17.7	14.3	6.2	15.7	19.0	21.9	30.9
Percent of adults who are obese (BMI >= 30)			28.3	30.3	29.5	15.3	26.5	29.5	32.9	45.6
Percent of adults reporting fair/poor health, 14+ bad mental health days, or activity limitations			30.0	28.6	31.1	17.9	26.6	29.5	33.1	42.0

Note: HRR = hospital referral region.

[1] In order to provide a clear, simplistic demographic picture of race, the authors elected to stratify each region's population by those identifying as white only, black or African American only, or any other race or combination of racial backgrounds. These three categories capture 100 percent of the population, with Hispanic or Latino ethnicity recorded separately.

[2] Market concentration is calculated using the Herfindahl-Hirschmann Index (HHI). General standards outlined by the U.S. Department of Justice divide the spectrum of market concentration into three broad categories: unconcentrated (HHI below 1,000), moderately concentrated (HHI from 1,000 to 1,800), and highly concentrated (HHI above 1,800).

[3] Commonwealth Fund's analysis of Managed Market Surveyor, Healthleaders-Interstudy (Jan. 2010). Used with Permission. All Rights Reserved.

[4] Commercial spending estimates provided by M. Chernew, Harvard Medical School Department of Health Care Policy, analysis of the Thomson Reuters MarketScan Database. Total per-enrollee spending estimates generated 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 2009. Outpatient prescription drug charges are excluded, as were enrollees with capitated plans and their associated claims. Estimates for each HRR were adjusted for enrollees' age and sex, the interaction of age and sex, partial-year enrollment, and regional wage differences.

[5] Analysis performed by the Institute of Medicine. Total Medicare per-person spending estimates include payments made for hospital (part A) and outpatient (part B) services. Estimates exclude extra payments to support graduate medical education and treating a disproportionate share of low-income patients. Data are standardized by making adjustments for regional wage differences.

Appendix B. Select Community Contextual Factors

	Region (HRR)		
Factors	**Western New York (Buffalo)**	**West Central Michigan (Grand Rapids)**	**Southern Arizona (Tucson)**
Relative size	Second-largest metropolitan area in state	Second-largest metropolitan area in state	Second-largest metropolitan area in state
Population change[1]	Declining (–3.0% from 2000 to 2010)	Growing (4.5% from 2000 to 2010)	Fast growing (16.2% from 2000 to 2010)
Economy: job and wage growth[2]	Above average (rank 75 of 200 cities); predominance of service-sector jobs	Average (rank 100 of 200 cities); headquarters of several national firms	Below average (rank 150 of 200 cities); some high-tech but many low-wage jobs
Health care costs[3] (2009)	33% below the median (commercial) 8% below the median (Medicare)	12% below the median (commercial) 7% below the median (Medicare)	21% below the median (commercial) 11% below the median (Medicare)
Educational institutions	University at Buffalo medical school is partnering with a local health system to create an academic medical center.	Michigan State University medical school campus and local allied health programs support health workforce development.	University of Arizona provides expertise for developing evidence-based community initiatives and neighborhood coalitions.
Local philanthropy	Community/family foundations support innovations that improve safety-net access and promote care transformation.	Local philanthropists fund infrastructure; health system foundation provides $6 million annually for health programming.	(Interviewees did not mention as a factor.)
State Medicaid policy[4]	Second-highest Medicaid spending per enrollee among U.S. states; the majority are enrolled in capitated managed care.	Below-average Medicaid spending per enrollee among U.S. states; most are enrolled in capitated managed care.	Near-average Medicaid spending per enrollee among U.S. states; delivered exclusively through capitated managed care.
Smoke-free policy[4]	Statewide (worksites, restaurants, bars)	Statewide (worksites, restaurants, bars)	Statewide (worksites, restaurants, bars)
Cultural values and shared motivations	Shared commitment to developing a high-quality, efficient care system as a means of fostering an economic revitalization.	Conservative social values and engaged employer community contributes to a sense of stewardship for shared resources.	Progressive values and pride of place inspire efforts to promote healthy lifestyles and meet the needs of the underserved.
Challenges	Income inequality (inner city is among the poorest in U.S.) and health disparities particularly in medically underserved areas; dependence on external funding.	Rising health care costs and market competition are testing the bounds of community accountability.	Poverty (sixth-highest among large metro areas); drug trafficking and substance use; health disparities particularly in health professional shortage areas.

Note: HRR = hospital referral region.
Sources: Authors' analysis of case study interviews and background information unless otherwise noted below.
[1] W. H. Frey, Population Growth in Metro America Since 1980, Brookings Institution, 2012.
[2] Milken Institute, Best-Performing Cities 2012. Rankings reflect 200 large metropolitan areas during 2005–2011.
[3] M. Chernew analysis of Thomson Reuters MarketScan Database and IOM analysis of Medicare claims (see Appendix A, note 4 for source notes). Differences in costs reflect differences in both prices and service use for commercial enrollees, but differences only in service use among Medicare beneficiaries.
[4] Kaiser Family Foundation, State Health Facts.

Appendix C. Local Health Care Marketplace Characteristics in Case Study Regions

	Region (HRR)		
Characteristics	**Western New York (Buffalo)**	**West Central Michigan (Grand Rapids)**	**Southern Arizona (Tucson)**
Hospitals and health systems	The 17-hospital region is moderately concentrated around two large nonprofit health systems: a three-hospital Catholic system, and a recent affiliation between a five-hospital system and a county hospital that was orchestrated by the state to "right-size" hospital capacity in the region.	The 14-hospital region is concentrated around three health systems: a nonprofit nine-hospital system formed through a community-directed merger, a nonprofit Catholic system that is integrating across the region, and an osteopathic hospital that recently affiliated with a for-profit chain.	The 16-hospital region is moderately concentrated around four health systems: a three-hospital nonprofit Catholic system, the two-campus University of Arizona academic medical center, a large nonprofit community hospital, and a two-campus medical center owned by a national for-profit chain.
Physician practices and medical groups	Most area physicians practice alone or in small groups, often as members of IPAs affiliated with health systems or plans. Employed physicians practice in system-affiliated or independent medical groups and the medical school faculty practice.	Health systems employ an increasing number of physicians in affiliated medical groups, but most physicians continue to practice independently, typically as members of virtual physician organizations such as PHOs that play a key role in local medical culture.	Small, independent, single-specialty physician practices are experienced with managed care. Large medical groups include primary care providers employed by the Catholic system, the University's faculty practice, and an independent federation of private physicians.
Safety-net clinics	Several FQHCs and "look-alike" community clinics are collaborating to identify and fill unmet needs throughout the region.	A large FQHC operates 15 clinics primarily in the city of Grand Rapids; the Catholic system runs five urban and rural centers for uninsured and underserved patients.	Several FQHCs serve the area, the largest of which operates clinics and programs in 15 locations around Greater Tucson.
Health plans	Regional nonprofit health plans partner with physicians to adopt common performance metrics and design flexible incentives that promote regional improvement.	Statewide and regional nonprofit health plans offer incentives for quality improvement by supporting investments in primary care infrastructure and physician organizations.	National, state, and local health plans; some support primary care medical homes or provide navigators to help patients participate in disease management.
Local participation in health care delivery reform initiatives	A large IPA formed a Medicare ACO in partnership with the Catholic system. A multihospital coalition is participating in the federal CBCT program to reduce readmissions of high-risk elderly patients.	Two local physician organizations are participating in a statewide Medicare ACO with the Ann Arbor–based University of Michigan Health System.	An independent community hospital partnered with 180 physicians in private practices and FQHCs to form an ACO serving privately insured and Medicare patients. An area council on aging is collaborating with the Catholic health system to participate in the federal CBCT program.

Note: ACO = accountable care organization; CBCT = community-based care transitions; FQHC = federally qualified health center; HRR = hospital referral region; IPA = independent practice association; PHO = physician–hospital organization.

Source: Authors' analysis of interviews, background documents including HealthLeaders-InterStudy Market Overviews, and publicly available information.

Appendix D. Summary of Regional Pathways to Higher Performance

Region (HRR)		
Western New York (Buffalo)	**West Central Michigan (Grand Rapids)**	**Southern Arizona (Tucson)**
1) Regional collaboration to improve health care delivery and population health Example: A regional "coalition of coalitions" convenes stakeholders to advance population health and build improvement capacity. In one effort, county health departments, local hospitals, and community groups are creating a community health improvement plan for the entire region.	**1) Regional planning and accountability to promote efficient use of resources and enhance health care value** Example: Locally conducted certificate-of-need reviews have helped limit duplicative investments in high-cost services such as medical imaging equipment, contributing to comparatively lower use and costs of such services in the region.	**1) Community organizing efforts to promote health and physical activity** Example: A community-wide health campaign advocates and offers technical assistance for establishing nutrition programs in schools, health ministries in faith-based organizations, wellness programs in businesses, and healthy food choices and physical activity in neighborhoods.
2) Partnership between regional health plans and physicians to improve quality Example: Physician groups use capitated payment and performance incentives from health plans to adopt EHRs, hire care coordinators, and implement disease registries to improve care transitions and disease management, achieving a positive return on health plan investment.	**2) Mutually reinforcing efforts and incentives to improve quality** Examples: Health plan performance incentive programs have enabled primary care physicians to develop the infrastructure for patient-centered medical homes; the programs are associated with improved quality and reduced use of hospital and radiology services among participants.	**2) Use of refined managed care techniques to improve quality and drive efficiency** Example: A multisite community health center assign nurses to follow patients after they are discharged from area hospitals to make sure they have their medications and understand next steps in care, leading to a 20 percent drop in readmissions. Pharmacy-based diabetes clinics help patients manage drug regimens and engage in self-care.
3) Investment in health information technology infrastructure Example: In 2012, 95 percent of laboratory test results and 85 percent of radiology reports generated in the region were available electronically to physicians through a regional health information exchange organization, helping to speed diagnosis and reduce duplication of services.	**3) Community outreach to address health needs of underserved populations** Example: An interconception care program encourages good nutrition, dental care, and birth spacing of at least 18 months among women who have previously experienced a bad pregnancy outcome, leading to longer pregnancy terms, higher infant birthweights, and fewer NICU admissions.	**3) Collaboration to improve continuity of care and chronic disease management** Example: The Pima County Council on Aging trains volunteers who cooperate with health systems and community organizations to help older adults remain independent in their homes, by educating them about risk of falls and self-management of chronic conditions.
4) Leveraging local resources to improve public health and extend the safety net Example: Bringing together local safety-net providers created a communication bridge between hospitals and outpatient clinics, which led to a program to reroute uninsured patients from EDs to primary care sites, some of which have extended their hours to meet patients' needs.	**4) Commitment to strengthening the safety net for uninsured and low-income residents** Example: Kent County's Children's Healthcare Access Program draws on philanthropic dollars to strengthen primary care for 15,000 low-income children enrolled in a regional Medicaid health plan, leading to improved asthma control, reduced ED visits, and fewer missed school days.	**4) Programs to address the needs of underserved and uninsured residents** Example: A telemedicine program created by a local health system offers cardiology consults to critical access hospitals, reducing the need for costly helicopter transports and saving $500,000 in a six-month period at one site.

Note: EHR = electronic health record; ED = emergency department; NICU = neonatal intensive care unit.
Source: Authors' analysis of case study interviews and background documents.

Appendix E. Relevance of Various Factors to Regional Health System Performance, as Rated by Local Stakeholders

	Average rating by region (1 = low importance, 3 = high importance)			
	Western New York (Buffalo) (N=7)	West Central Michigan (Grand Rapids) (N=9)	Southern Arizona (Tucson) (N=6)	Combined average
Stakeholder role-based factors				
Providers or provider groups or associations (e.g., hospital, physician, FQHC)	2.6	2.7	2.7	2.6
Private payers (e.g., insurers, health plans, self-insured employer groups)	2.6	2.6	2.5	2.5
Community-based organizations (e.g., council on aging, YMCA, Citizens' League, etc.)	1.9	2.1	2.7	2.2
Employers (e.g., engagement in employee health and wellness programs or health care improvement initiatives)	1.9	2.4	2.0	2.1
Consumers (e.g., engagement in health promotion)	1.7	1.9	2.3	2.0
Public payers (e.g., Medicare, Medicaid, CHIP)	1.4	1.9	2.2	1.8
Local health-related government agencies (e.g., public health departments)	1.6	1.9	2.0	1.8
Instrumental factors				
Collaborative efforts among key stakeholders to identify, prioritize, and/or address local health needs	2.6	2.6	2.2	2.4
Participation in demonstration projects (e.g., patient-centered medical homes, ACOs, etc.)	2.6	2.1	2.5	2.4
Regional initiatives to address a particular problem (e.g. chronic disease, hospital-acquired infections, readmissions)	2.1	1.6	2.5	2.1
Use of health information technology and electronic health records to improve performance	2.4	1.7	2.2	2.1
Efforts to address the needs of the uninsured	2.2	1.7	2.3	2.1
Learning collaboratives to train health care providers in quality improvement techniques	2.0	1.8	1.8	1.9
Pay-for-performance programs	2.1	1.9	1.5	1.8
Technical assistance from regional extension centers, QIOs, or other sources	2.1	1.2	1.7	1.7
Public reporting of performance measures	1.7	1.4	1.8	1.7
Public policy initiatives	1.9	1.2	1.8	1.6
Participation in programs organized by external entities (e.g., IHI, GPOs, CDC, HRSA, etc.)	1.3	1.8	1.7	1.6

* Respondents to a preinterview written questionnaire were asked the following: "To understand the factors that play a significant role in regional performance on health care access, quality, efficiency, and population health, please indicate the importance of the following in the [region], by ranking them of high, medium, or low relevance, or not applicable." Ratings were converted into a numeric scale where 1=Low and 3=High. Responses of not applicable (N=3) were given a numeric rating of zero. Items without a response (N=3) were not given a rating.

Source: Authors' analysis of case study interviews and background documents.

About the Authors

Douglas McCarthy, M.B.A., directed this project as senior research adviser at the Institute for Healthcare Improvement from 2011 to 2013. He currently serves as senior research director for The Commonwealth Fund, where he oversees the Fund's Scorecard project, conducts case-study research on delivery system reforms and breakthrough opportunities, and serves as a contributing editor to the bimonthly newsletter *Quality Matters.* His 30-year career has spanned research, policy, operations, and consulting roles for government, corporate, academic, nonprofit, and philanthropic organizations. He has authored and coauthored reports and peer-reviewed articles on a range of health care–related topics, including more than 50 case studies of high-performing organizations and initiatives. Mr. McCarthy received his bachelor's degree with honors from Yale College and a master's degree in health care management from the University of Connecticut. During 1996–1997, he was a public policy fellow at the Hubert H. Humphrey School of Public Affairs at the University of Minnesota.

Sarah Klein is an independent journalist in Chicago. She has written about health care for more than 10 years as a reporter for publications including *Crain's Chicago Business* and *American Medical News.* She serves as editor of *Quality Matters,* a newsletter published by The Commonwealth Fund. Ms. Klein received a B.A. from Washington University and attended the Graduate School of Journalism at the University of California, Berkeley.

Alexander (Sandy) Cohen, M.P.H., M.S.W., a research associate at the Institute for Healthcare Improvement (IHI), supports qualitative research of high-performing local and regional health systems, as well as the design and rollout of a formative evaluation system applied to a range of IHI quality improvement projects. For more than five years he has engaged in a diverse spectrum of health services research and practice across academic, nonprofit, and community-based settings, specializing in mental and behavioral health services, care management systems, and health care reform. Mr. Cohen received master's degrees in clinical social work and public health, concentrating in health policy and management, from Boston University.

Acknowledgments

This case study was developed as part of a grant from The Commonwealth Fund to the Institute for Healthcare Improvement. The authors are grateful to the many individuals in each region who shared their perspectives on the case study regions (see the Acknowledgments in each case study report). The authors also thank the following individuals who shared insights on local health system performance as background for the project: Erin Bonzon, M.S.W., M.S.P.H., National Association of County and City Health Officials; Julie Willems Van Dijk, R.N., Ph.D., University of Wisconsin, Population Health Institute; Carol Beasley, Ninon Lewis, Zoe Sifrim, and John Whittington, M.D., Institute for Healthcare Improvement; Len Nichols and Jay Shiver, Department of Health Administration and Policy, George Mason University; Dennis Scanlon, Ph.D., Pennsylvania State University; and Romana Hasnain-Wynia, Ph.D., Patient-Centered Outcomes Research Institute. The authors also thank Anne-Marie Audet, M.D., M.Sc., David Radley, Ph.D., Cathy Schoen, and the communications staff at The Commonwealth Fund for advice on and assistance with case study preparation.

Editorial support was provided by Joris Stuyck.

The views presented here are those of the authors and not necessarily those of the Institute for Healthcare Improvement or The Commonwealth Fund or their directors, officers, or staff. This case study was based on publicly available information and self-reported data provided by the case study participants. The Commonwealth Fund is not an accreditor of health care organizations or systems, and the inclusion of an institution in the Fund's case study series is not an endorsement by the Fund for receipt of health care from the institution.

www.commonwealthfund.org