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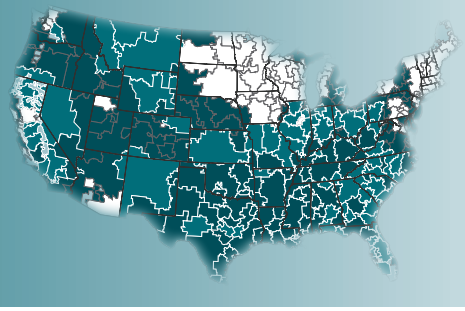

Buffalo and Western New York: Collaborating to Improve Health System Performance by Leveraging Social Capital

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

ABSTRACT: The western region of New York State encompassing Buffalo and surrounding counties ranks in the top quartile among 306 U.S. regions evaluated by The Commonwealth Fund's *Scorecard on Local Health System Performance, 2012,* performing especially well on measures of access, prevention, and treatment. Its relatively strong performance may reflect the collective impact of partnerships of local nonprofit health plans and physicians to improve quality; the development of a regional health information exchange that enables the sharing of clinical and administrative health care data among hospitals, physicians, and insurers; and the cooperation of community foundations and nonprofit organizations in conceiving a strategic vision for addressing unmet health care needs. An exemplar of the region's approach is the P^2 Collaborative of Western New York, a "coalition of coalitions" that convenes community stakeholders to advance population health programs and efforts to transform clinical practice.

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For more information about this study, please contact:

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

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BACKGROUND

The Commonwealth Fund's *Scorecard on Local Health System Performance, 2012*, found wide variation across 306 regions* of the United States on 43 indicators assessing health care access, quality, efficiency, and outcomes (Appendix A).[1] This case study series examines selected U.S. regions that performed relatively well on the *Scorecard*—overall or on particular dimensions of performance—despite challenges associated with poorer performance, such as higher poverty rates compared with similarly performing peers.[2]

This report focuses on the Buffalo "hospital referral region," which includes all or parts of 11 counties in Western New York State (Exhibit 1). The region ranked 54th on the *Scorecard*, placing it in the top quartile of regions on performance dimensions that measure access to care and the quality of preventive care and

* The unit of analysis for the *Scorecard on Local Health System Performance, 2012,* is the hospital referral region, defined by the *Dartmouth Atlas of Health Care* on the basis of travel and referral patterns for complex care among Medicare beneficiaries.

treatment (Exhibit 2). The case study draws on interviews with a range of local stakeholders to identify factors that may contribute to better performance in the region.

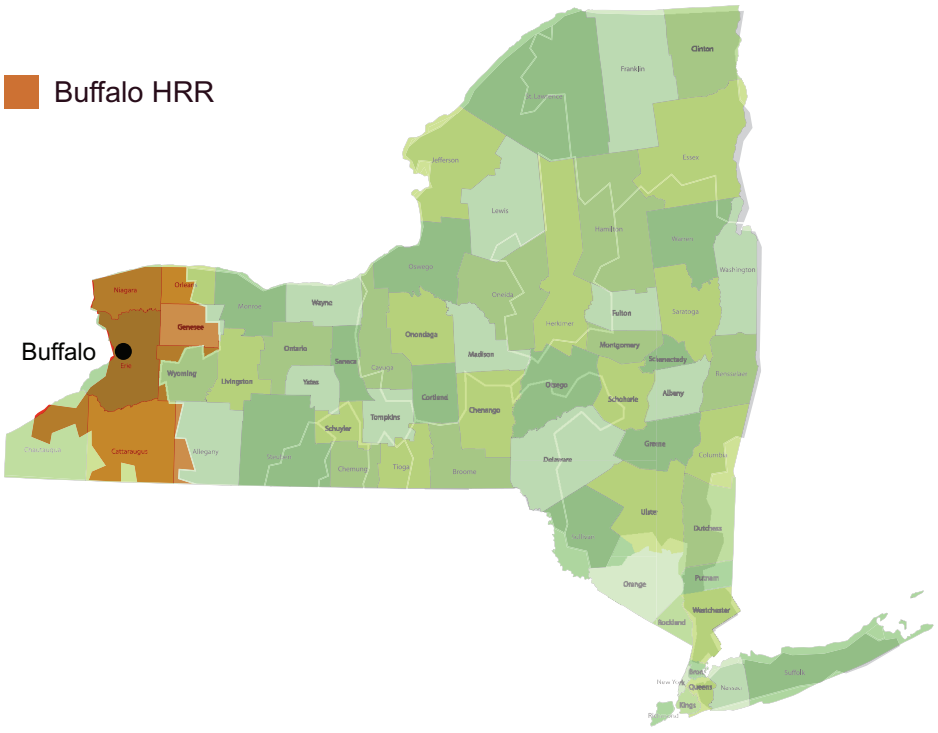
OVERVIEW OF THE WESTERN NEW YORK REGION

The western region of New York State, which includes the state's second-most-populous city, Buffalo, as well as a number of suburban and rural communities (Exhibit 1), has suffered numerous economic setbacks, beginning in the late 1950s when the St. Lawrence Seaway opened and routed shipping traffic away from the area. Its troubles continued into the 1970s and 1980s as its steel industry contracted and manufacturing jobs moved overseas. Over those decades the population of Buffalo—once the nation's eighth-largest city—fell by more than half, from 580,132 in 1950 to 261,310 in 2010.

Efforts to reverse Western New York's fortunes have focused on recruiting businesses in new industries, such as financial services and information technology, and revitalizing older ones, including health care. The region's health care ambitions, driven by state policy and community action, are unfolding along two fronts. The objective of the first is to enhance the region's reputation for delivering high-quality, complex care, thereby attracting patients who might otherwise go to nearby Rochester, N.Y., Cleveland, Ohio, or Pittsburgh, Pa., for treatment. A tangible manifestation of this is the ongoing development of the Buffalo-Niagara Medical Campus, in downtown Buffalo, as a hub for health care and life science research, and for bioinformatics, education, and entrepreneurship.

A second regional ambition is to improve the health of the local population in hopes of further lowering area health care costs, which are already lower than national norms, thereby making the region more attractive to new employers. This vision for the region "is about making our community a better, healthier place. Ultimately, if we [do] that right, we manage the

Exhibit 1. The Buffalo Hospital Referral Region in Western New York



Note: The Buffalo hospital referral region includes ZIP codes in Cattaraugas, Chautauqua, Erie, Genesee, Livingston, Monroe, Niagara, Orleans, Wyoming, McKean, and Potter counties.
Source: Adapted from the Dartmouth Atlas of Health Care, www.dartmouthatlas.org.

Exhibit 2. Performance Summary for the Buffalo Hospital Referral Region

Dimension	Quartile	Rank
Overall	1	54
Access	1	11
Prevention and Treatment	1	69
Potentially Avoidable Hospital Use and Cost	2	113
Healthy Lives	2	100

Note: Performance is based on 43 indicators covering the time period 2007–2010. See Appendix A for a complete list of indicators and the specific time periods they cover.
Source: The Commonwealth Fund *Scorecard on Local Health System Performance, 2012.*

cost trend so that we'd be seen as a high-quality, lower-cost community . . . . We'd turn our economic fortunes around," says Michael Cropp, M.D., M.B.A., president and CEO of Independent Health, one of the top three nonprofit health plans in the region.

Achieving these goals has been the focus of a number of county and regional coalitions that bring together politicians, health department officials, and philanthropic leaders, among others, to identify and address gaps in care, build capacity for improvement among providers, and increase population health through media campaigns and wellness programs. These improvement efforts focus not only on the metropolitan market of Buffalo and Niagara Falls, which have high rates of poverty, but also on outlying counties that are largely rural and sparsely populated.

PATHWAYS TO HIGHER PERFORMANCE

Stakeholders described four pathways by which the region appears to achieve relatively higher performance in certain dimensions. These include: 1) partnership between health plans and physicians to improve quality, 2) investment in health information technology infrastructure, 3) regional collaboration to improve health care delivery and population health, and 4) the leveraging of local resources to improve public health and extend the safety net (Exhibit 3). These four pathways do not account for every aspect of the region's performance. State policy, for example, plays an important role in supporting access to care. Nevertheless, these pathways offer a lens through which to observe the ways stakeholders in the region are improving the local health system. Some of the activities described below have occurred since the time period measured by the *Scorecard*—evidence that the region's capabilities continue to progress along these pathways.

Partnership Between Health Plans and Physician Groups to Improve Quality

Local physicians have partnered with the area's nonprofit health plans to implement quality improvement initiatives—many of which are focused on improving the health status of plan members with chronic conditions such as diabetes, asthma, and congestive heart failure. Performance-based incentives and capitated payment arrangements with regional health plans have enabled physician groups to increase disease-specific registry reporting, implement electronic health record (EHR) systems, and hire care coordination nurses who help patients manage chronic conditions and make safe transitions between hospital and home.

Physician practices affiliated with Catholic Medical Partners, for example, an independent practice association (IPA) in Buffalo, have collectively hired more than 240 care coordinators (usually nurses) who work in the practices to support chronic disease management for a case load of approximately 350 patients each. A team of registered dieticians offers nutrition education to patients at pediatric, primary care, and specialty care practices. The IPA also uses performance incentives to help the practices use their EHRs to improve the quality of care and the efficiency of clinic workflow, as well as to defray the cost of purchasing the systems. More than 90 percent of the IPA's member physicians now use an EHR system.[3]

As a result of such interventions, the percentage of diabetic patients whose lipid levels, blood pressure, and hemoglobin A1c levels were all under control increased from 13.9 percent to 32.2 percent over a three-year period. Hospital readmissions within

Exhibit 3. Key Demographic and Health System Characteristics: Western New York[5]

Demographics and Health

The Buffalo hospital referral region has a population of almost 1.4 million, of which 261,310 live in the city of Buffalo. Although the region is predominantly white (82%), nearly half of Buffalo's residents belong to racial and ethnic minority groups (Appendix B). Median household income in the region ($43,670) is close to the median for all U.S. regions, though lower than the median for the state ($55,233). Buffalo is one of the poorest cities in the nation, with 28.6 percent of its residents living below the poverty level—more than double the median of 13.5 percent among all U.S. regions. Community health assessments indicate that the health of the local population generally lags that of the rest of the state, especially in urban neighborhoods and some rural areas.[6]

Hospitals and Health Systems

The Buffalo hospital referral region is served by 17 hospitals; the number of hospital beds per capita is close to the median for all U.S. regions (Appendix B). The market is moderately concentrated around two large nonprofit health systems:

1. **Great Lakes Health System** is an affiliation of Kaleida Health (with five hospitals and 250 employed physicians), Erie County Medical Center, the University at Buffalo, the Visiting Nurse Association of Western New York, and the Center for Hospice and Palliative Care. The entity was formed at the behest of the state's Berger Commission as part of a statewide effort to "right-size" hospital capacity.[7]

2. **Catholic Health** operates three hospitals and a range of primary and community care facilities and services. It employs 60 physicians and is affiliated with Catholic Medical Partners, an independent practice association of 980 physicians that has formed an accountable care organization (ACO) in collaboration with other local providers.

Other major providers in the region include Niagara Falls Memorial Medical Center, Eastern Niagara Health System, which operates a merged hospital with campuses in two rural communities, and the Roswell Park Cancer Institute in Buffalo.

Physicians and Health Centers

Although the number of physicians per capita is typical of the U.S. (Appendix B), four counties in the region are among 22 statewide that have been identified as most in need of additional primary care services.[8] Most physicians practice alone or in small groups, often as members of independent practice associations (IPAs) that contract with health insurers and engage in quality improvement initiatives. Large physician groups include the **Buffalo Medical Group,** a 100-physician multispecialty practice, and **UBMD,** a 450-physician faculty practice affiliated with the University at Buffalo School of Medicine. Three federally qualified health centers and one "look-alike" clinic offer primary care to underserved patients in the region, with five new sites under development (at the time the case study was conducted).

Health Insurers

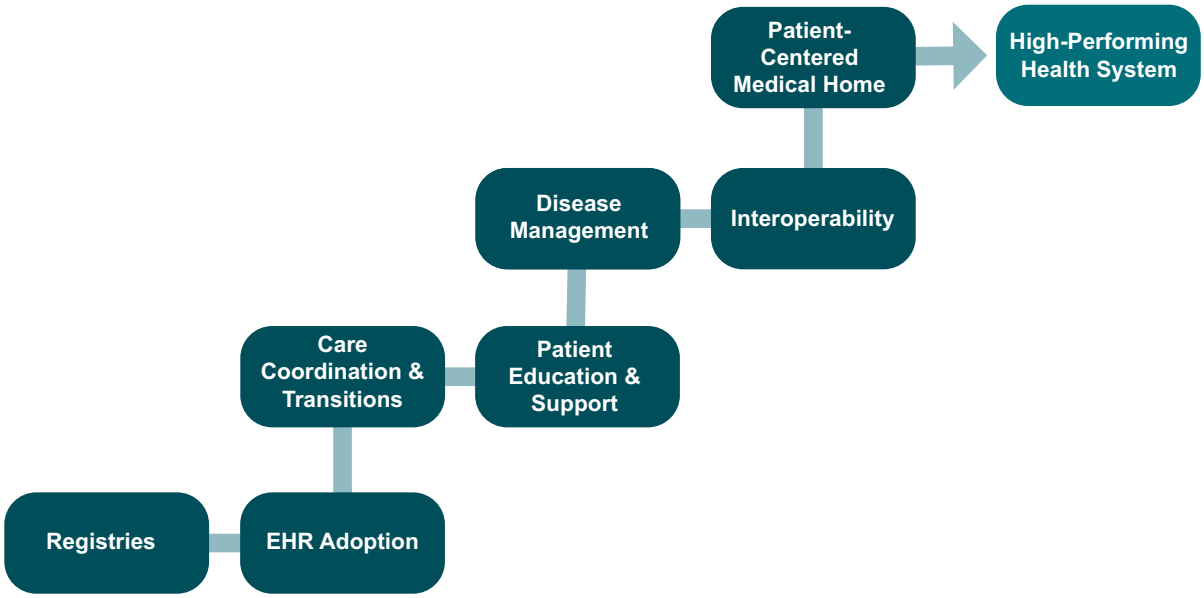
Three regional nonprofit health plans—HealthNow New York (the Blue Cross Blue Shield plan for Western New York), Independent Health, and Univera Healthcare—together serve almost three-quarters of the regional market.[9] This market concentration is similar to the national rate, although the predominance of nonprofit plans is unusual. Managed care penetration is relatively high, as it is statewide; almost one-third of the region's residents are enrolled in health maintenance organizations and almost half of its senior citizens are in Medicare Advantage managed care plans.

The region's lower-than-average uninsured population (11.3% of adults and 4.3% of children) is partially attributable to New York State's expansive Medicaid program—New York was one of only nine states offering any Medicaid coverage to adults without children during the period measured by the *Scorecard.*[10] The state also indirectly subsidizes the costs of the Healthy New York program, which offers coverage for uninsured workers and small businesses.[11]

Employers

Major purchasers of health insurance coverage include government agencies, educational institutions, health systems, banks, trade and transportation firms, and utilities.

Exhibit 4. Catholic Medical Partners Strategy for High Performance



Source: Adapted from K. D. Moore and D. C. Coddington, ACO Case Study: Catholic Medical Partners (Chicago: American Hospital Association, 2011).

30 days declined substantially among a subset of at-risk patients enrolled in a care transitions program that offers postdischarge home visits, in collaboration with Catholic Health Home Care, to those who would not otherwise qualify for home care.[4]

These investments have enabled more than 40 practices to qualify as patient-centered medical homes and positioned the IPA to participate in Medicare's Shared Savings Program as a federally designated accountable care organization (ACO), beginning in 2012.[12] "We believe everything that is embodied in the ACO is what we already were doing with our other payers for our commercial products and our Medicare Advantage [members]," says Michael Edbauer, D.O., CMP's chief medical officer. Exhibit 4 illustrates this approach.

Buffalo Medical Group has used health plan performance incentives to increase payments to primary care doctors and enhance patients' access to care by creating a Saturday after-hours clinic. It has also hired care coordination nurses and contracted with a clinical pharmacologist to conduct medication reviews and increase the use of generic medications. To spur improvement, Buffalo Medical Group "banks" a physician's share of the group's performance bonus if he or she doesn't at first meet targets for disease management, then gives the physician six months to improve. If the physician fails to do so, the bonus is distributed to other physicians in the medical group.

"We've evolved to the point where we share very specific outcomes with one another. It engages a dialogue [about] how you achieve these targets," says Irene Snow, M.D., the group's medical director. Both Snow and Edbauer say the support of the health plans has been critical to sustaining provider-driven quality improvement programs. "We're a small enough community that…we're not going to be successful just trying to do things completely on our own," Edbauer says.

The three regional health plans structured their performance incentive programs in collaboration with physician leaders, permitting them flexibility in how they allocate the additional reimbursement. The plans also aligned their measurement strategies, thereby allowing physicians to use a single set of measures to assess the care of patients with diabetes, congestive heart failure, coronary artery disease, depression, and

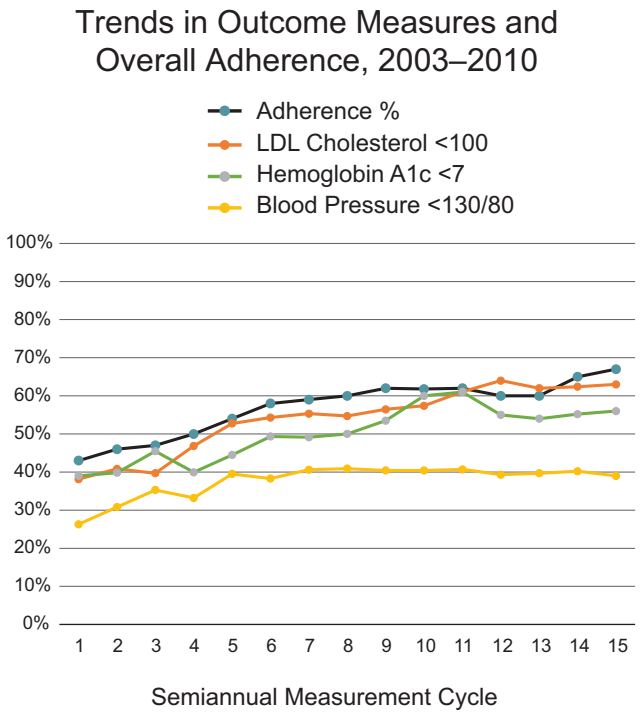
renal failure. For example, Catholic Medical Partners uses the single set of measures to aggregate results from three local health plans to create a comprehensive and comparable view of its physicians' practice patterns. Cooperative quality measurement and improvement efforts such as these likely contribute to the relatively strong quality performance of the region's three health plans, which rank among the top 15 percent of the 474 private health insurance plans evaluated by the National Committee for Quality Assurance.[13]

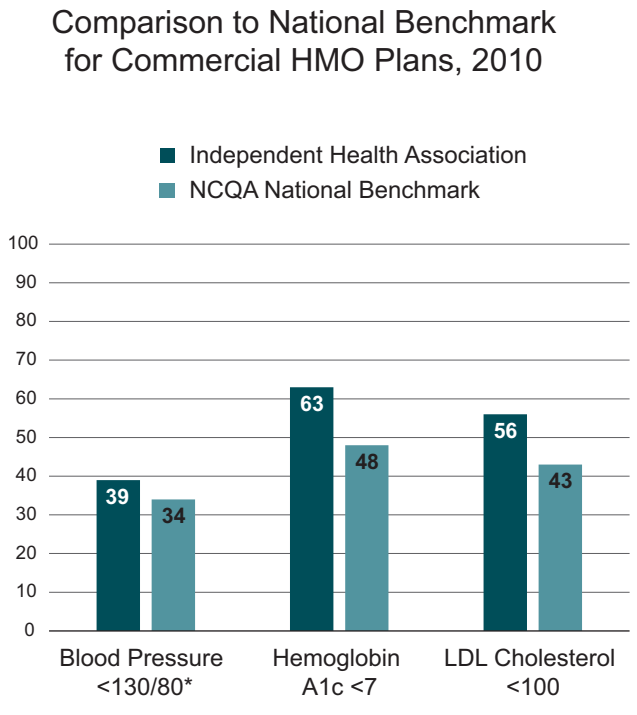
Investment in Health Information Technology Infrastructure

Population health management and quality improvement initiatives in Western New York are facilitated by a regional health information exchange (HIE)

Independent Health Association's Diabetes Practice Excellence Program

Established in 1980, Independent Health is a local nonprofit insurer that covers nearly 400,000 individuals in Western New York. In addition to providing infrastructure support to local physician practices, Independent Health worked with physicians to design a diabetes initiative that combined meaningful pay-for-performance incentives with accurate measurement and continuing medical education credit to build "improvement literacy."[14] The health plan also provided the practices with "practice management specialists" to help them improve adherence to evidence-based standards of care, and hired health coaches to work directly with patients to improve their understanding of chronic diseases and increase adherence to treatment regimens. Since the program began, in 2003, the percentage of diabetic patients who have achieved goals for disease control has increased substantially, while the health plan's performance has risen from the 50th to the 90th percentile among health plans nationally. The program has saved $2.46 for each $1.00 invested, through reduced hospitalizations, emergency department visits, and medication costs.[15] Independent Health has since expanded the incentive program to other chronic conditions.





Sources: Independent Health Association and National Committee for Quality Assurance (NCQA), State of Health Care Quality, 2011.
Note: LDL=low-density-lipoprotein. Adherence means the percentage of process and outcome measures met compared to goal.
*National benchmark for blood pressure represents 2009 (data for 2010 not available). HMO = health maintenance organization.

organization known as HEALTHeLINK. The organization had its origins in a collaboration of local hospitals and health plans that came together in 2000 to develop an administrative data exchange known as HEALTHeNET to meet federal requirements for standardizing electronic transactions. The resulting system enabled providers to go to a single source for information on their patients, including insurance eligibility, claim status, referrals, and preauthorizations. "Adoption was fantastic because there was one place for provider organizations to go, and every time they used the system it was one less phone call to make," says Dan Porreca, executive director of HEALTHeLINK and HEALTHeNET.

The administrative exchange is funded equally by seven founding health plans and hospitals. "There were some very forward-thinking folks in this community that got together and said, 'This is something we all have to do and we can either do it independently or we can think about doing this together in a collaborative fashion,'" Porreca says.

This collaborative experience paved the way for subsequent development of the Western New York Clinical Information Exchange (branded as HEALTHeLINK), which has been supported in part by a series of state and federal grants.[16] The exchange offers a secure, Web-based portal through which physicians can order prescriptions and view laboratory test results, radiology reports, and medication histories for their patients who give consent. It also electronically delivers clinical results directly to an increasing number of physicians' EHR systems, and to secure portals for access by patients. To promote the interoperability of EHRs, HEALTHeLINK is working with EHR vendors to implement the exchange of continuity-of-care documents that capture a "snapshot" of a patient's conditions and treatment to facilitate referrals and care coordination among primary care and specialty care providers.

One reason for the system's popularity is that it has allowed physicians without EHRs to begin using Web-based virtual health record applications. "Adoption continues to grow as more and more providers understand the value and they build use of HEALTHeLINK into their facilities' process and workflow," Porreca says. The exchange's use statistics bear the story out (Exhibit 5).

Exhibit 5. Use of a Health Information Exchange in Western New York

- Use of the virtual health record for patient record lookups increased from a few thousand queries in 2009 to 324,000 queries in 2012.
- Two-thirds (67%) of all prescriptions in the region were written electronically in 2012, up from 17 percent in 2009. By way of comparison, 44 percent of prescriptions were submitted electronically across the nation in 2012.[17]
- There were 188,500 continuity-of-care documents exchanged between physicians' electronic medical records in 2012 (more than double the number in the prior year), helping to improve care transitions and coordination.
- In 2012, 95 percent of laboratory results and 85 percent of radiology reports generated in the region were available through the exchange, with more than 650,000 of these reports delivered directly into the ordering physician's electronic medical record.

As the lead agent for Western New York's participation in the three-year federal Beacon Community Program, HEALTHeLINK collaborated with Catholic Medical Partners and the P^2 Collaborative of Western New York (described below) to help physician practices implement disease registries and clinical support tools in their EHRs and qualify for patient-centered medical home recognition from the National Committee for Quality Assurance. HEALTHeLINK also worked with home health agencies to institute a telemonitoring pilot program for patients with diabetes who were at risk of hospitalization, one of several interventions to improve care and reduce costs for this patient population. In collaboration with the State Department of Health, HEALTHeLINK developed open-source solutions to facilitate electronic public health functions, including "biosurveillance" and transmission of immunization records.

Regional Collaboration to Improve Health Care Delivery and Population Health

Another distinguishing feature of the Western New York region is a widespread spirit of collaboration, as evidenced in area coalitions that bring community-based organizations and government together to promote health and address gaps in care. The furthest-reaching is the P² Collaborative of Western New York, which convenes providers, patients, payers, educators, and government, religious, and other community leaders.[18] P² stands for "pursuing perfection"—a name this "coalition of coalitions" actively works to earn. Launched with modest local funding in 2007, the organization has grown so rapidly that it now sustains a $4 million annual budget and has brought more than $15 million of external funding into the community, including participation in the Robert Wood Johnson Foundation's Aligning Forces for Quality program.

P²'s mission is to educate and motivate residents to adopt healthy lifestyles and to help health care providers implement the best care practices. The work largely consists of convening members of the community and building organizational capacity. Executive Director Shelley Hirshberg says the organization seeks to serve as a key change agent and innovation driver by meeting with different types of communities and understanding what their barriers are to adopting and maintaining healthy behaviors. "Through facilitated meetings with multistakeholder groups within each community, we help them understand where they are and help them determine what they need to change, and then assist them in designing solutions and building capacity so they can sustain their own change," she says.

The organization partners with county health departments to help assess community needs and resources and facilitate improvement. For example, P² won a collaborative grant with rural Cattaraugus County, the state's Office for the Aging, and many other community groups to take a deeper look at data from the University of Wisconsin's County Health Rankings and, through a series of facilitated meetings, address the unmet health needs in the county. P² partners with community organizations to bring this kind of health improvement planning to the neighborhood level. For example, P² helped Grace Lutheran Church, in Niagara Falls, to examine County Health Rankings data and plan to improve behavioral health in the community. "It was something they already cared about, and we simply provided the data and the facilitation. It got them excited and validated their own understanding of the issues in the community," says Hirshberg.

P² also acts as an incubator for other nonprofits and agencies to secure funding for regional public health planning and improvement efforts. For example, the regional group worked with eight health commissioners in the area to form the Western New York Public Health Alliance (described in the next section). To help facilitate health system transformation, P² plays a leadership role in a Medicaid collaborative that brings four health plans together to support the use of care coordinators and community health workers in six urban practices in Buffalo and Niagara Falls. Recently, P² took on a new role as the local contracting entity for the region's participation in the federally funded Community-Based Care Transitions program, which brings hospitals, community-based organizations, and other providers together to help Medicare patients safely transition between hospital and home.

P² also has invested in programs to reduce the burden of chronic diseases such as asthma, heart disease, and diabetes. For instance:

- A "Living Healthy" program trained more than 90 residents across the region to serve as peer leaders who use the techniques of Stanford University's Patient Education Research Center to improve patients' ability to communicate with providers and manage their conditions.
- A "Power Eaters" program introduced school children to eating two or more fruits or vegetables at lunch. Another program relied on peer-to-peer support groups to promote breastfeeding, which rose from 13 percent to 45 percent of participating women.

Western New York also benefits greatly from the grantmaking activities of local philanthropies. The Health Foundation for Western and Central New York and the John R. Oishei Foundation, in particular, provide millions of dollars in funding to local organizations and service providers to improve access to care, reduce the prevalence of chronic conditions, and help providers and insurers work cooperatively to implement evidence-based disease management programs. Some of their grants have been used to support the opening of safety-net clinics, launch programs to improve care transitions and care coordination, and implement interventions to reduce falls among the elderly.

Leveraging Local Resources to Improve Public Health and Extend the Safety Net

Western New York takes a collaborative approach to public health as well. Its Western New York Public Health Alliance brings together local health departments, community organizations, health care providers, and academic institutions to assess community health risks, facilitate regional planning, and obtain grants to address identified issues. P^2 is facilitating a process to find synergy and alignment between the county health departments' community health assessments and local hospitals' community services plans. Together with community groups, they formed a coalition called the Healthy Livable Community Consortium to choose two high-priority goals and create a community health improvement plan for the entire region. The Alliance also has focused on the care of patients with asthma and HIV/AIDS, and more recently the need for cancer screenings among Niagara County residents who are uninsured or underinsured. Rural health networks reinforce this work by performing community outreach and providing information on health issues to consumers.

The region also has a number of coalitions that operate at the county level. For example, the Cattaraugus County health department convened a group of 90 people representing the county and its municipalities, community-based and faith-based organizations, businesses, insurers, and others, to assess community assets and the socioeconomic factors that affect health. The group, which operates as a volunteer organization, has decided to focus on three topics: children in poverty; the built environment, including biking and walking trails; and tobacco use.

CHALLENGES AND INSIGHTS

The Western New York region has made exemplary progress in its efforts to improve quality of care and population health, but the community faces some challenges to ongoing improvement. In recent years, several of its leading hospitals have had to deal with merger activity and the realignment required by the

THE VALUE OF REGIONAL COLLABORATION AMONG SAFETY-NET PROVIDERS

The Safety Net Association of Primary Care Affiliated Providers (SNAPCAP) offers a forum for urban and rural safety-net providers in Western New York, including federally qualified health centers, hospitals, and community-based clinics, to identify unmet needs, develop strategic plans for addressing them, and offer participants encouragement for realizing their shared mission to serve vulnerable patient populations. The group's community needs assessment revealed locations where patients were having difficulty accessing care, and produced data to support applications for additional federal funding. The group, which meets monthly, also has worked to improve information exchange and transitions in care.

Bringing together local safety-net providers "opened the door for us to communicate more directly" with the county health commissioner, says Frank Azzarelli, SNAPCAP chair and associate vice president of People Inc., a social service agency in Western New York. It also created a communication bridge between hospitals and outpatient clinics, which led to a program to reroute uninsured patients from emergency departments to primary-care sites, some of which have extended their hours to meet patients' need.

state's Berger Commission, which recommended closures and consolidation of institutions across the state to reduce the excess capacity and duplication in services that contribute to inefficiency.[19] This realignment has the potential to integrate care and advance quality through the creation of an academic medical center, as the University at Buffalo relocates its Medical School downtown to the Buffalo-Niagara Medical Campus. However, there is a concern that an institutional focus on improving physical infrastructure—including several new facilities and refurbished emergency rooms in the region—may negate the goals of the right-sizing and detract from efforts to reduce inappropriate hospital use.

The region's improvement efforts are heavily dependent on grant funding, much of it from the State of New York, which may represent a form of economic development as well as an investment in health. Grant funding has rewarded collaboration but carries risks associated with long-term sustainability and potential diffusion of mission. In consideration of such concerns, HEALTHeLINK assessed predicted return on investment and gained financial support from local stakeholders before seeking matching grant funding to build a regional health information exchange. It also has prepared a sustainability plan to transition pilot projects funded through the federal Beacon Community program.

Performance incentives from health plans have been effective in supporting physicians' quality improvement efforts, largely because the majority of payers in the market participated. This was possible probably because regional health plans are locally controlled nonprofits that appear responsive to community concerns. Recently, health plans have been creating exclusive partnerships with health systems and physicians to offer employers the cost-saving potential of a narrow network of aligned providers.[20] Participating physicians also may have the potential to share in financial savings from improvements in care. An open question is whether and how these arrangements may change the nature of regional collaboration between the players in the future.

Those challenges notwithstanding, the region has many assets, including the social capital that appears to accrue from the interactions of civic-minded leaders who share a "pride of place" and a desire to overcome the region's economic challenges. A sign of the region's potential economic comeback can be seen in Buffalo-Niagara's recent designation as one of the best places to raise a family.[21] The relatively small size of the metropolitan area also increases stakeholder commitment and accountability, according to Ann Monroe, president of the Health Foundation for Western and Central New York. "You see your grantees in the grocery store. It makes your work more relevant," she says. The region also benefits from the state's strong Medicaid program and funding for public health programs and rural health networks, which increases access to care and supports local planning and action.

Communities seeking to learn from Western New York's success may benefit most from studying the way the community has leveraged opportunities to invest in its future. "It really requires a commitment to capacity-building in the community," Monroe says. Another lesson for other communities is that social capital is analogous to a muscle that grows stronger with use. Regional collaboration can beget further collaboration opportunities when pursued in a spirit that seeks to define and achieve shared goals. This is not to say that collaboration has been without challenges. But with cultivation and attention to governance, the collaborators say, the fruits of their cooperation have been well worth the investment.

Appendix A. Local Scorecard Performance Results for the Buffalo Hospital Referral Region

Dimension and Indicator	Data Year	BUFFALO		All-HRR Median	Top 10th Percentile	Top 1st Percentile	NY State Rate
		HRR Quartile	HRR Rate				
Access							
Percent of adults age 18–64 insured	2009–2010	1	88.7	80.2	87.5	92.6	83.7
Percent of children age 0–17 insured	2009–2010	1	95.5	93.8	96.3	98.2	95.3
Percent of adults who reported no cost-related problem seeing doctor when they needed to within past year	2009–2010	1	90.1	85.3	90.7	93.9	87.3
Percent of at-risk adults visited doctor for routine checkup in past two years	2009–2010	1	92.0	85.2	90.4	92.9	89.7
Percent of adults visited dentist, dental hygienist, or dental clinic within past year	2010	1	74.8	69.7	77.9	82.7	72.4
Prevention and Treatment							
Percent of adults with usual source of care	2009–2010	1	92.5	82.4	88.8	92.0	86.4
Percent of adults age 50 and older received recommended screening and preventive care	2008 & 2010	1	50.0	44.2	50.8	54.5	48.5
Percent of adult diabetics received recommended preventive care	2008–2010	n/a	n/a	45.5	55.7	63.1	n/a
Percent of Medicare beneficiaries received at least one drug that should be avoided in elderly[1]	2007	1	19.2	25.0	17.9	12.9	n/a
Percent of Medicare beneficiaries with dementia, hip/pelvic fracture, or chronic renal failure received prescription in an ambulatory care setting that is contraindicated for that condition[1]	2007	1	16.8	19.7	15.3	12.5	n/a
Percent of patients hospitalized for heart failure who received recommended care[2]	2010	3	94.0	94.7	97.5	98.9	95.3
Percent of patients hospitalized for pneumonia who received recommended care[2]	2010	3	93.2	95.1	96.9	98.3	93.0
Percent of surgical patients received appropriate care to prevent complications[2]	2010	3	94.9	96.2	97.4	98.6	95.8
Percent of hospitalized patients given information about what to do during their recovery at home	2010	2	82.9	82.6	86.2	87.9	78.8
Percent of patients 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	2010	4	57.5	63.2	67.1	70.3	56.9
Risk-adjusted 30-day mortality among Medicare patients hospitalized for heart attack[3])	7/2007–6/2010	3	15.5	15.6	14.4	13.1	14.7
Risk-adjusted 30-day mortality among Medicare patients hospitalized for heart failure[3]	7/2007–6/2010	3	11.3	11.4	9.9	9.1	10.7
Risk-adjusted 30-day mortality among Medicare patients hospitalized for pneumonia[3]	7/2007–6/2010	3	13.0	11.8	10.6	9.5	11.5
Percent of home health care patients whose ability to walk or move around improved[4]	4/2010–3/2011	3	52.4	53.4	56.7	58.6	48.4
Percent of home health care patients whose wounds improved or healed after an operation[4]	4/2010–3/2011	3	86.2	88.0	90.3	92.0	85.1
Percent of high-risk nursing home residents with pressure sores[5]	2008–2009	1	12.4	10.9	7.9	6.1	n/a
Percent of long-stay nursing home residents who were physically restrained[5]	2008–2009	1	3.2	3.3	1.5	0.6	n/a
Percent of long-stay nursing home residents who have moderate to severe pain[5]	2008–2009	1	1.9	3.6	2.2	1.4	n/a
Percent of Medicare decedents with cancer diagnosis without any hospice or who enrolled in hospice during last three days of life	2007	4	61.9	55.6	46.6	38.6	68.1

Dimension and Indicator	Data Year	BUFFALO		All-HRR Median	Top 10th Percentile	Top 1st Percentile	NY State Rate
		HRR Quartile	HRR Rate				
Potentially Avoidable Hospital Use and Cost							
Hospital admissions among Medicare beneficiaries for ambulatory care–sensitive conditions, per 100,000 beneficiaries	2009	3	7,181	6,184	4,045	2,691	6,576
Readmissions within 30 days of discharge as percent of all admissions among Medicare beneficiaries	2008	3	18.5	17.7	15.1	13.1	20.9
Potentially avoidable emergency department visits among Medicare beneficiaries, per 1,000 beneficiaries	2009	2	187	197	162	139	178
Percent of long-stay nursing home residents hospitalized within six-month period	2008	1	13.1	20.0	11.9	8.3	20.2
Percent of first-time nursing home residents readmitted within 30 days of hospital discharge to nursing home	2008	2	17.9	20.6	15.8	12.7	22.6
Percent of home health care patients with hospital admission	4/2010–3/2011	4	35.5	26.6	22.4	19.9	39.7
Medicare imaging costs per enrollee	2008	3	$309	$288	$189	$143	$447
Total Medicare (Parts A & B) reimbursements per enrollee[6] (expressed as ratio to all-HRR median)	2008	2	$7,410 (0.93)	$7,952	$6,432	$5,699	$8,363
Total reimbursements per commercially insured enrollee ages 18–64[6] (expressed as ratio to all-HRR median)	2009	1	$2,228 (0.67)	$3,314	$2,801	$2,524	$2,889
Healthy Lives							
Potentially preventable mortality, deaths per 100,000 population[7]	2005–2007	3	92.3	91.3	71.6	59.1	87.3
Breast cancer deaths per 100,000 female population[8]	1996–2005	1	24.2	28.9	22.6	19.4	24.8
Colorectal cancer deaths per 100,000 population[8]	1996–2005	2	19.7	22.8	16.9	12.8	18.2
Infant mortality, deaths per 1,000 live births[8]	1996–2005	2	6.7	6.8	4.9	4.0	6.0
Percent of live births with low birth weight[8]	1996–2005	2	6.9	7.5	6.0	5.4	8.0
Suicide deaths per 100,000 population[8]	1996–2005	1	8.8	15.4	8.2	4.7	6.0
Percent of adults who smoke	2009–2010	3	20.7	19.0	12.6	8.4	17.0
Percent of adults ages 18–64 who are obese (BMI >= 30)	2009–2010	2	28.3	29.5	23.8	17.9	25.5
Percent of adults ages 18–64 who have lost six or more teeth because of tooth decay, infection, or gum disease	2009–2010	3	11.4	10.1	5.9	3.6	9.1
Percent of adults ages 18–64 report fair/poor health, 14 or more bad mental health days, or activity limitations	2009–2010	3	30.0	29.5	23.5	19.6	28.2

n/a = data are not available for this indicator for this HRR.

[1] Metric forms part of the score reflecting potentially inappropriate prescribing among elderly Medicare beneficiaries.

[2] Metric forms part of the score reflecting receipt of recommended hospital care.

[3] Metric forms part of the score reflecting hospital mortality.

[4] Metric forms part of the score reflecting quality of home health care.

[5] Metric forms part of the score reflecting quality of nursing home care.

[6] Total per-person Medicare spending estimates include payments made for hospital (Part A) and outpatient (Part B) services. Estimates exclude extra payments to support graduate medical education and treatment of a disproportionate share of low-income patients; adjustments are made for regional wage differences. Commercial 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 are enrollees with capitated plans and their associated claims. Commercial spending estimates were adjusted for enrollee age and sex, the interaction of age and sex, partial-year enrollment, and regional wage differences.

[7] Data for this indicator come from county-level 2005–2007 NVSS-M data files, aggregated to the HRR level, for most HRRs. Estimates for the Anchorage and Honolulu HRRs represent state-level data and are compiled from years 2006–2007.

[8] Data for this indicator come from the Community Health Status Indicators (CHSI) database. CHSI data are reported at the county level. Counties with small populations require more years of data for stable estimates. HRR-level estimates can, but do not necessarily, include data from each year between 1996 and 2005, depending on the population sizes in the counties in the HRR.

Note: Refer to Appendix B in the *Scorecard on Local Health System Performance, 2012*, for indicator descriptions, data sources, and other notes about methodology.

Appendix B. Demographic and Market Characteristics

	Data Source	Data Years	City of Buffalo	Buffalo HRR	New York	Median HRR
Demographic characteristics						
Total population	American Community Survey, U.S. Census	2007–2011	263,914	1,376,405	19,302,448	616,212
Age under 18			24.0	21.9	22.5	23.7
Age 65 and older			11.7	15.7	13.4	13.6
Race[1]						
White	American Community Survey, U.S. Census	2007–2011	51.9	83.7	66.2	82.6
Black or African American			37.9	10.6	15.6	6.5
Other race or multiracial			10.2	5.7	18.2	7.4
Ethnicity						
Hispanic or Latino			9.1	4.0	17.4	6.6
Non-Hispanic, white			47.7	81.5	58.7	74.4
Non-Hispanic, black or African American			37.2	10.3	14.5	6.3
Non-Hispanic, other race or multiracial			6.0	4.2	9.4	4.1
Median household income			$30,230	$50,116	$56,951	$49,276
Percent below federal poverty level (FPL)			29.9	14.2	14.5	10.7
Percent below 200% FPL			53.7	31.4	31.1	27.7
High school education or less, adults over age 25			48.2	44.0	43.2	45.3
Bachelor's degree or higher			22.5	26.3	32.5	24.1
Market characteristics						
Hospital beds per 1,000 population	Dartmouth Atlas	2006		2.6	3.0	2.4
Hospital market concentration[2]	Medicare Provider of Service File	2010		1,616 (moderate)	1,463* (moderate)	2,541 (high)
Primary care physicians per 100,000 residents	Dartmouth Atlas	2006		68.0	75.6*	68.8
Specialty physicians per 100,000 residents				118.6	131.8*	117.5
Market share of top three insurers (commercial)	Managed Market Surveyor, Healthleaders-Interstudy[3]	2010		73.0	66.5	74.6
HMO penetration (among all payers)				30.5	30.0	16.5
Total reimbursements per commercially-insured patient under age 65	Commercial claims[4]	2009		$2,228	$2,889	$3,314
Total standardized Medicare (Parts A & B) spending per beneficiary	IOM analysis of Medicare claims[5]	2009		$7,800	$8,817	$8,483
Percent change in standardized Medicare spending per beneficiary (2007–2011)	IOM analysis of Medicare claims[5]	2007–2011		11.8	13.8	10.5

HRR = hospital referral region, as defined by the *Dartmouth Atlas of Health Care*.

Note: The U.S. rate represents the median of all HRR-level rates.

* State rate not available. Figure reported represents the median of all HRRs anchored within the state.

[1] The authors stratified 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. Individuals indentifying as Hispanic or Latino ethnicity (and non-Hispanic racial prevalence) are displayed 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). HealthLeaders-Interstudy. 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.

NOTES

1 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 System 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 *Local Scorecard* is not the same as the "U.S. median," but is rather a "median among all regions."

2 Among 26 hospital referral regions with more than 1 million population that ranked in the top quarter overall on the *Local Scorecard*, the Buffalo HRR was one of the four regions with the highest poverty rates (percentage of people with family income below the federal poverty level) during 2007–2011. The others are Tucson, Arizona; Grand Rapids, Michigan; and Rochester, New York.

3 P. Pantano, "Catholic Medical Partners Honored for Leadership in Health Information Technology," WGRZ-TV, Dec. 5, 2013, http://williamsville.wgrz.com/news/business/137511-catholic-medical-partners-honored-leadership-health-information-technology.

4 J. Markiewicz and M. K. Rickerson, "Care Transitions: Catholic Health Home Care Development and Implementation," presentation at the National Association of Home Care and Hospice Annual Meeting, Las Vegas, Oct. 2011.

5 Background on the region was derived in part from HealthLeaders-InterStudy, *2013 Market Overview: Buffalo*, as well as from interviews with local stakeholders (see Acknowledgments), Web sites, and demographic and market data prepared for the *Local Scorecard* (see Appendix B).

6 See, for example: L. Tumiel-Berhalter, C. Crespo, and D. Rowe, *The Western New York Public Health Alliance Health Risk Assessment Update, 2004–2005* (University at Buffalo, Population Health Observatory, 2005); and Erie Co., N.Y., "2010–2013 Health Assessment," http://www2.erie.gov/health/sites/www2.erie.gov.health/files/uploads/pdfs/CHA.pdf.

7 Great Lakes Health System, "Settlement Reached Over Berger Commission Litigation," press release, http://greatlakeshealth.com/pdf/2008_06_23.pdf.

8 T. Drury, "Four WNY Counties Cited Among 22 in Need of Expanded Health Care," *Buffalo Business First,* April 16, 2013, http://www.bizjournals.com/buffalo/news/2013/04/16/four-wny-counties-cited-among-22-in.html; and Community Health Care Association of New York, *A Plan for Expanding Sustainable Community Health Centers in New York* (Albany: New York State Public Health Association, April 2013).

9 Univera Healthcare is an affiliate of The Lifetime Healthcare Companies, a not-for-profit holding company based in Rochester, N.Y., which also operates Excellus Blue Cross Blue Shield in upstate New York.

10 New York State's Medicaid program covers nondisabled parents with incomes up to 150 percent of the federal poverty level (FPL), pregnant women up to 200 percent of FPL, and adults without children up to 100 percent of FPL. See: http://www.statehealthfacts.org/profileind.jsp?cat=4&rgn=34.

11 K. Swartz, *Healthy New York: Making Insurance More Affordable for Low-Income Workers* (New York: The Commonwealth Fund, Nov. 2001).

12 K. D. Moore and D. C. Coddington, *ACO Case Study: Catholic Medical Partners* (Chicago: American Hospital Association, 2011).

13 HealthNow ranked 45th, Independent Health ranked 48th, and Univera ranked 67th among 474 private plans that submitted data for the 2012–2013 rankings of clinical performance, member satisfaction, and accreditation status. See: National Committee for Quality Assurance, "Private Health Plan Rankings, 2012–2013 Rankings" (Washington, D.C., NCQA), http://www.ncqa.org/ReportCards/HealthPlans/HealthInsurancePlanRankings/PrivateHealthPlanRankings20122013.aspx.

14 Statement of Thomas J. Foels, chief medical officer, Independent Health, at the hearing "Reforming SGR: Prioritizing Quality in a Modernized Physician Payment System," Committee on Energy and Commerce Subcommittee on Health, United States House of Representatives, June 5, 2013, http://energycommerce.house.gov/hearing/legislative-hearing-medicare-physician-payment-reform.

15 T. J. Foels and S. Hewner, "Integrating Pay for Performance with Educational Strategies to Improve Diabetes Care," *Population Health Management,* June 2009 12(3):121–29.

16 Sources of grant funding have included the Health Care Efficiency and Affordability Law for New Yorkers (HEAL NY) Capital Grant Program, administered by the New York State Department of Health, the federal Agency for Healthcare Research and Quality, the federal Beacon Community Cooperative Agreement Program, and the federal Centers for Disease Control and Prevention. For more on the HEAL NY grant program, see: L. M. Kern, Y. Barron, E. L. Abramson et al., "HEAL NY: Promoting Interoperable Health Information Technology in New York State," *Health Affairs,* March/April 2009 28(2):493–504.

[17] Surescripts, *The National Progress Report on E-Prescribing and Safe-Rx Rankings: Year 2012,* (Arlington, Va.: Surescripts, 2012), http://surescripts.com/docs/default-source/national-progress-reports/national-progress-report-on-e-prescribing-year-2012.pdf.

[18] J. B. Harvey, J. Beich, J. A. Alexander et al., "Building the Scaffold to Improve Health Care Quality in Western New York," *Health Affairs,* March 2012 31(3):636–41.

[19] The Commission on Health Care Facilities in the 21st Century, also known as the Berger Commission, was created by former New York Governor George Pataki and the New York State Legislature "to undertake a rational, independent review of health care capacity and resources in New York State" and "to ensure that the regional and local supply of hospital and nursing home facilities is best configured to appropriately respond to community needs for high-quality, affordable and accessible care, with meaningful efficiencies in delivery and financing that promote infrastructure stability." See: http://www.nyhealthcarecommission.org.

[20] T. Drury, "Independent Health Joins First Choice Network," *Buffalo Business First,* Oct. 3, 2012, http://www.bizjournals.com/buffalo/news/2012/10/03/ind-health-joins-first-choice-network.html; and T. Drury, "New Physician Network Seeks to Lower Patient Costs," *Buffalo Business First*, Oct. 15, 2012, http://www.bizjournals.com/buffalo/news/2012/10/15/new-physician-network-seeks-lower.html.

[21] F. Levy, "America's Best Places to Raise a Family," *Forbes*, June 7, 2010, http://www.forbes.com/2010/06/04/best-places-family-lifestyle-real-estate-cities-kids.html.

ABOUT THE AUTHORS

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.

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.

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.

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