

Building a National Data Repository to Measure and Improve Health Center Quality

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Abstract: Community health centers provide access to high-quality care for underserved populations and have a history of success with quality improvement initiatives, due to their mission and data reporting requirements. Investments in the health center infrastructure can bolster efforts to create a Nationwide Health Information Network to better utilize the available data. Aggregation, stratification by health center type, and use of patient-level quality data enable the development of quality measures that can be used to target health center resources and further improve quality. Health centers are fertile testing grounds for strategies to utilize data and performance measures to fuel quality improvements. **Key words:** *access, data, performance measures, quality*

CURRENT LITERATURE suggests that the quality of care provided by community health centers (CHCs) often meets or exceeds the national average, although the population served by health centers is by definition at greater risk for poor health outcomes due to being underserved (Chin et al., 2000; Dor et al., 2008). Health centers tend to perform better than other parts of the health care system, especially in serving low-income and vulnerable populations (Dor et al., 2008, 2009; Hicks et al., 2006; Politzer et al., 2001; Proser, 2005; Starfield et al., 1994). Community health centers are laboratories of innovation for quality improvement activities, due

to their community-oriented mission, well-established performance reporting practices, strong networks and technical assistance support, and history of involvement with quality improvement activities and learning collaboratives. Federal investments in health information systems and health reforms, aimed at improving coverage for low-income populations, are integral to CHC quality improvement efforts.

This article reports on 2 existing efforts that can be used as the basis for the development of a national health information infrastructure as well as of standardized measures to facilitate meaningful evaluation and improvement of health care quality for the patients and communities served by CHCs.

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This research is sponsored by the RCHN Community Health Foundation and the United Health Foundation.

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BACKGROUND

Given their patient mix and community risk for poor health, health centers are highly focused on improving access to quality care. As early adopters of the “medical home” model, health center services reflect and build on a patient-centered, primary care-oriented program design to enhance the quality and cost-effectiveness of care delivery (Shin et al.,

2009). The benefits of the medical home model and an orientation toward primary care have been well documented in a multinational meta-analysis that indicates that access to a medical home is associated with better health outcomes, decreased overall costs of health care, and a reduction in disparities (Starfield & Shi, 2004). Health center experiences with quality improvement programs can provide lessons for other types of ambulatory care providers as they embark on related initiatives.

Yet, despite their documented achievements, the lack of a standardized and comprehensive approach to collecting quality of care data has limited the ability of health centers to identify opportunities for developing clinical interventions to improve the quality of care and, ultimately, the health outcomes of the communities they serve. The Health Resources and Services Administration (HRSA), which oversees the health center program, has only recently begun to collect relevant data. In 2008, as part of their required annual reports to HRSA, health centers reported 4 new quality of care measures on diabetes, blood pressure, immunization, and Papanicolaou tests (birth outcomes are also regularly reported). Because the data are limited to a few select measures, aggregated at the provider level, and offer only snapshots of annual clinical performance, the analytic utility is limited to tracking trends, defining high-performance and -quality goals, and identifying health centers with low performance in need of additional resources or technical assistance.

Establishing meaningful use of such information is one of the primary objectives of the Obama administration and requires the ability to collect, access, and analyze patient-level information. Health centers can capitalize on their own quality improvement and reporting successes to help shape the processes and procedures for reporting and using the information. Specifically, health centers can leverage their experience with patient tracking and registry systems as well as performance reporting to better define appropriateness of the measures and program expectations.

QUALITY DATA AND THE NATIONAL HEALTH CENTER QUALITY OF CARE DATA REPOSITORY

The hallmark effort to track and improve quality, the Health Disparities Collaboratives (HDC), launched by the HRSA in 1998 and funded through 2008, disseminated chronic disease management techniques through a “communities of practice” learning network. The purpose of the collaboratives was to improve chronic disease care management, primarily through the application of systematic quality improvement efforts in a cohort of centers. In addition, the HDC effort created a patient registry called the Patient Electronic Care System, which allowed health centers to better track and monitor patients, focusing initially on diabetes and later on management of patients with cardiovascular disease, asthma, depression, and cancer, in addition to preventive care, oral health, access, and program redesign. Health centers reported a high rate of participation in the HDC, with more than 90% of centers involved in at least 1 of the collaboratives. The HDC achieved documented success in improving the quality of care for patients with diabetes, hypertension, and asthma.

Building on this achievement, health center-controlled networks (HCCNs) and primary care associations have developed data repositories that contain rich quality of care information. The largest repository sits at the Michigan Primary Care Association (MPCA), which hosts data from more than 100 health center grantees in 24 states that collectively provide care to more than 1 million patients (Hayashi et al., 2009). Despite the end of formal funding support for the collaboratives, the MPCA maintained the infrastructure to host and support various electronic health record and registry applications, including Patient Electronic Care System.

The MPCA supports a rich, patient-specific clinical database, including clinical information related to medical treatment and biomarkers such as vital signs, body mass index, and laboratory results as well as limited

financial information. Table 1 displays aggregated MPCA registry data for several diabetes “process of care,” “clinical outcome,” and “access” measures. Bottom and top quartiles illustrate the varying performance that exists among the CHCs, which offer an enhanced model of care. Similarly, rich data exist for cardiovascular disease, asthma, and depression.

Like the annual reports that health centers submit to the HRSA, the data repository enables use of aggregated data to assess trends and develop system-wide performance benchmarks, and the MPCA effort demonstrates that it is possible to capture and evaluate a system-wide profile of performance levels for a greater number of measures. Examining a diverse array of measures helps to identify unmet needs, such as greater access to eye and foot examinations for diabetic patients.

Furthermore, using patient-level data, such as location, can help to refine how health centers target services or create collaborations with other community organizations. Unlike the Uniform Data System, or UDS, the data repository can also pull in patient-level information. This allows for better data segmentation and permits stratifying the data to enable CHCs to compare their performance with other health centers sharing similar characteristics and patient populations. While health centers have the ability to analyze their own performance, participating in the data repository allows them to compare their performance, observe the range of performance outcomes, and potentially reach out to high performers to develop appropriate performance improvement programs. Until now, this comparative capability at the MPCA has not been fully utilized. The George Washington University is currently working with the MPCA, with support from the RCHN Community Health Foundation, to develop an analytic framework and template to use the health center patient-level records for improving quality across the participating centers.

This effort may be seen as part of a coordinated approach to quality improvement and the use of performance measures at the national level through the creation of a National Health Center Quality of Care Data Repos-

itory. The Nationwide Health Information Network (NHIN) is being developed by the federal government and the effort was accelerated by the American Recovery and Reinvestment Act, which provides substantial stimulus funds for health information technology (HIT). The NHIN goal is to securely house patient-level electronic health information so that it can be accessed by providers, insurers, consumers, and other stakeholders (Department of Health and Human Services, Office of the National Coordinator for Health Information Technology, 2010). The NHIN capability could serve as the backbone of the National Health Center Quality of Care Data Repository.

In addition to the data repositories, data marts and broader warehouses that exist in other states, there are approximately 83 HCCNs that share HIT infrastructure and data (Figure 1). While it is possible for individual health centers to directly share information with the NHIN, connecting via an HCCN has the advantage of providing regional level technical support and data analysis to the participating centers. Other efforts on which health centers can build a health care data infrastructure remain largely fragmented and lack an analytic framework or roadmap to improve quality and health outcomes. The *Health Care Cooperative Extension Services* have been proposed as a possible platform to combine research, education, and practice to transform primary care and diffuse quality improvement strategies (Grumbach & Mold, 2009). Also, many health centers participate in research and education through academic partners, practice-based research networks, and Area Health Education Centers. However, without a national model, fragmentation, interoperability, and data standardization issues loom large (Hayashi et al., 2009).

In the absence of a national model that connects health centers, HCCNs, primary care association networks, and warehouses, health centers may struggle to develop and define meaningful performance benchmarks. The availability of a centralized repository, with the capability to facilitate data exchange and integration, will enhance the ability of CHCs to

Table 1. Quality of Care Performance for Diabetes, 2007^a

	National Health Center Participation Rate	Warehouse Mean	Rate for Top 25%	Rate for Bottom 25%	Pilot Group Rate, %
Processes of care					
At least 1 Hb A _{1c} per year	NA	86.57	95.70	56.20	93.24 ^b
Two or more Hb A _{1c} 3 mo apart	36.07	45.18	62.50	11.40	61.29 ^b
Lipid profile	NA	57.92	82.80	29.70	59.59 ^b
Microalbumin/creatinine ratio	28.68	32.44	59.80	0.90	43.83 ^b
Angiotensin-converting enzyme inhibitor	68.51	20.78	37.70	3.10	24.72 ^b
Aspirin	67.21	19.09	37.40	2.00	21.28 ^b
Influenza vaccine	27.37	27.08	55.00	1.20	40.62 ^b
Clinical outcomes					
LDL <100	53.33	32.34	52.70	14.60	35.10 ^b
LDL <130	NA	48.49	72.80	24.20	51.66 ^a
BP <130/80	38.65	47.46	57.80	32.00	50.32 ^b
Hb A _{1c} <9.5	NA	73.96	85.60	44.30	82.87 ^b
Diabetic persons with Hb A _{1c} levels ≤9%	NA	71.71	83.60	42.10	40.33 ^c
Adults with hypertension whose most recent BP <140/90	NA	68.42	78.90	44.70	74.20 ^b
Access to additional care and education					
Dental examination	12.53	16.44	39.30	0.20	8.60 ^c
Dental referral	NA	9.96	31.70	0.00	5.02 ^c
Retinal examination	21.88	26.59	48.90	1.90	36.30 ^b
Retinal examination referral	NA	14.30	34.70	0.10	11.01 ^c
Foot examination	38.75	47.48	79.20	10.60	50.08 ^b
Foot examination referral	NA	5.42	16.40	0.00	0.43 ^c
Nutrition education	NA	23.51	62.60	0.60	14.69 ^c
Nutrition education referral	NA	4.98	12.60	0.00	3.98 ^c
Exercise education	NA	5.64	15.20	0.00	0.07 ^c
Diabetes education	NA	30.06	70.20	1.50	39.18 ^b

Abbreviations: BP, blood pressure; Hb A_{1c}, hemoglobin A_{1c}; LDL, low-density lipoprotein; NA, not applicable.

^aValues given are in percentages.

^bAbove warehouse mean.

^cBelow warehouse mean.

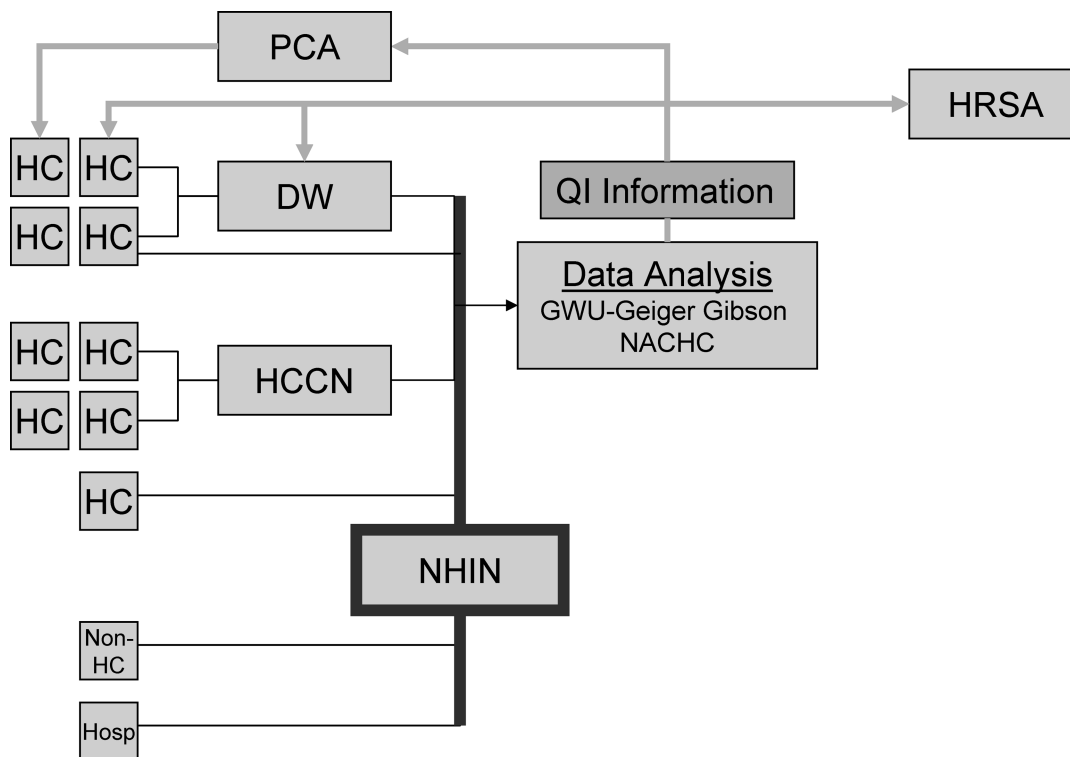


Figure 1. National Health Center Quality of Care Data Repository and National Health Information Network. DW, Data Warehouse; GWU, George Washington University; HC, Health Centers; HCCN, Health Center Controlled Networks; HRSA, Health Resources and Services Administration; NACHC, National Association of Community Health Centers; NHIN, National Health Information Network; PCA, Primary Care Association; QI, Quality Improvement by S. Hayashi, E. Jones, D. Stevens, P. Shin, B. Finnegan, and S. Rosenbaum. *Health Center Data Warehouse: Opportunities and Challenges for Quality Improvement*. Geiger Gibson/RCHN Community Health Foundation Research Collaborative, August 7, 2009.

set appropriate quality goals and develop the capacity to assess and identify best practices.

STANDARDIZING PERFORMANCE MEASURES

While the health center data repository and the National Health Information Network provide models for collecting and exchanging patient-level data, measures for assessing and rewarding quality health care have yet to be established. A pilot project funded by the United Health Foundation (and under evaluation by George Washington University) suggests that safety net clinics can adopt and use a wider range of measures than those currently used by the HRSA, consistent with those used by health care purchasers. In 2006, the United

Health Foundation began assisting 2 federally qualified CHCs in New York City and Washington, District of Columbia, and 1 ambulatory clinic in Miami, Florida, to implement enhanced performance reporting (a health center in New Orleans is also currently participating). The health centers adapted and used 10 of the 21 core measures identified by the Ambulatory Care Quality Alliance to report their performance (Shin et al., 2008). Using a mix of electronic medical records and medical record reviews, health centers were able to adapt National Committee for Quality Assurance measures and report on key clinical and preventive services.

The measures included: percentage of pregnant women screened for HIV at first or second trimester; percentage of patients queried

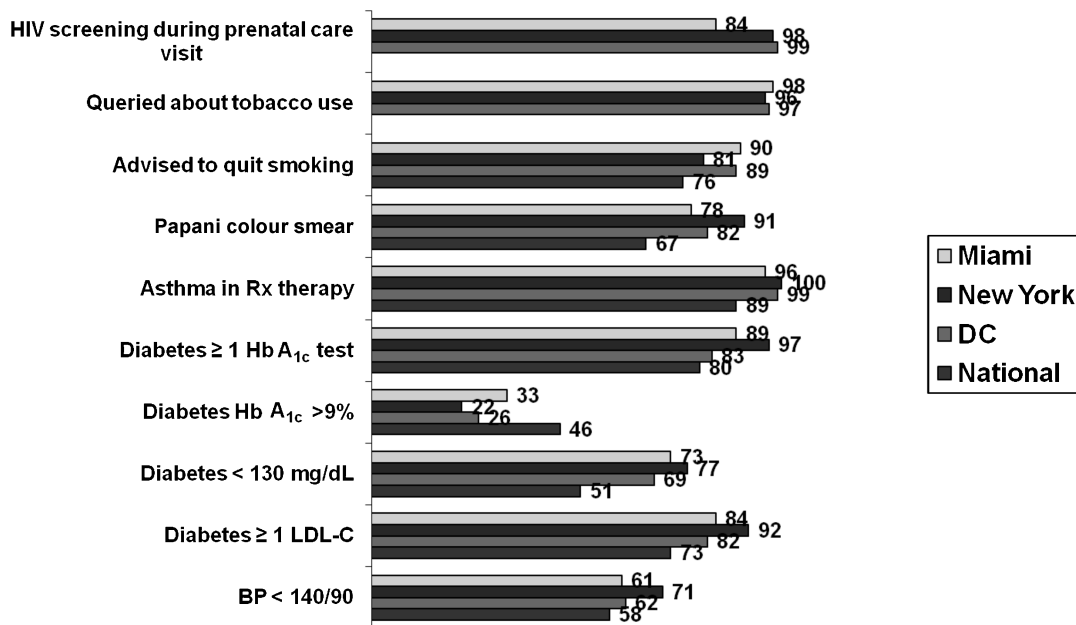


Figure 2. United Health centers of excellence performance measures. No national average benchmark is available for HIV screening and tobacco use. From National data obtained from Medicaid HEDIS 2009 audit means, percentiles, and ratios. Hb A_{1c} indicates hemoglobin A_{1c}; LDL-C, low-density lipoprotein cholesterol; BP, blood pressure.

about tobacco use and advised to quit smoking; percentage of women receiving a receiving a Papanicolaou test; and percentage of patients with persistent asthma in pharmacologic therapy. Given the high prevalence of patients with diabetes in the CHC population, health centers focused largely on the diabetes measures, including percentage of patients with at least 1 hemoglobin A_{1c} test, percentage of patients with poor glycemic control, patients with most recent low-density lipoprotein cholesterol of less than 130 mg/dL, and patients with controlled blood pressure. Other than the first 2 measures on screening for HIV and tobacco use, available national averages from Medicaid-managed care plans were also included.

Despite a complex patient mix, and large number of uninsured and low-income populations at risk of poor health, the 3 grantees selected by the United Health Foundation as centers of excellence continue to report strong performance on clinical quality measures relative to available national Medicaid average rates (Figure 2).

A national information network, coupled with standardized measures, may help health centers better make the case for financial rewards as well as enable them to help translate investments into other cost offsets and savings. The HRSA has begun collecting quality of care information in accordance with the national standards, and if these data demonstrate savings generated by health centers, they might prove persuasive with commercial health payers.

CONCLUSION

Health centers exist to improve access for low-income and vulnerable populations, and the HRSA has led efforts to increase quality through HIT and learning networks. With \$2 billion from the American Recovery and Reinvestment Act and HIT incentives, and the passage of landmark health reform legislation that includes \$11 billion for CHCs over the next 5 years, health centers are expected to double their capacity while substantially improving access to quality care and integrated

services. This requires a coherent and coherent roadmap for identifying standard measures to track performance and a data infrastructure for better integrating and exchanging the information. Health centers' experience with using registry/electronic information, implementing data repository capability, and adopting industry benchmarks provides a solid foundation for the various strategies for building a national health quality improvement infrastructure.

Health reform substantially increases the critical role that health centers will play in

meeting the escalating demand for health services. Despite misalignment of workforce availability and population needs in underserved communities, health centers improve access to quality care. However, for health centers to effectively play this role as a reasonable choice for newly insured, they must consistently show that their performance meets or exceeds those of other primary care settings. Efforts to create standardized measures and the creation of a national data repository enable health centers to provide high-quality care to underserved populations.

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