Issue Brief

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Increasing EHR Use for Quality Improvement in Community Health Centers: The Role of Networks

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ABSTRACT: Community health center (CHC) networks that provide electronic health record (EHR) services are increasingly important within the expanding CHC sector that serves disadvantaged patients. In this issue brief, researchers describe how networks helped CHCs to use EHRs to improve chronic and preventive care and the barriers they faced. Networks made EHR software easier to use for chronic and preventive care and developed reports on provider performance and on patients needing services. However, only one network provided extensive hands-on post-implementation training and leadership support. Key barriers faced by networks included: limited EHR software capabilities, limited funding for network clinical leaders, and CHC organizational autonomy that restricted resource sharing among CHCs. To help networks support CHCs' quality improvement, policies should increase funding to higher-performing, quality-focused networks and provide incentives for CHCs to share resources with the network and each other.

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OVERVIEW

Community health centers (CHCs) play a major and growing role providing ambulatory care to lower-income and underserved patients in the United States. In 2009, more than 1,100 CHCs spent over $11 billion serving 18.7 million patients, of whom 38 percent were uninsured, 37 percent were Medicaid beneficiaries, and 92 percent had incomes below 200 percent of the federal poverty level.[1] The Affordable Care Act provided an additional $11 billion to CHCs over five years, while the Medicaid eligibility expansion will enable CHCs to receive the relatively high federally qualified health center reimbursement rates for previously uninsured patients. Meanwhile, the American Recovery and Reinvestment Act (ARRA) of 2009 provided CHCs with $2 billion for capital needs and service expansion.[2]

Recent legislation has also stimulated the adoption of electronic health records (EHRs) by CHCs. The Health Information Technology for Economic and

Clinical Health (HITECH) Act within ARRA, which included $30 billion in incentives for EHR adoption and "meaningful use," rewarded CHCs and other safety-net providers with substantially higher incentive payments for using EHRs compared with those awarded to private practices. Meaningful use requires that providers use specific EHR capabilities in order to get paid.[3]

Although support services are critical to accelerating EHR adoption and use, HIT vendors typically provide limited support. The HITECH Act funded HIT regional extension centers (RECs) in part to provide additional EHR services, especially to small primary care practices and CHCs to help them achieve meaningful use of EHRs.[4] While large medical groups can use their substantial resources to create their own robust EHR services by improving software, increasing training, and redesigning workflow, most small practices lack the resources to do this and often cannot buy any additional services.

CHCs have more options for obtaining additional EHR support services than do solo or small-group practices. As mostly midsized organizations with more resources than small practices, many CHCs can provide their own services that complement EHR software. They may also have the opportunity to buy services from CHC networks—also called health center-controlled networks (HCCNs)—that provide EHR services that typically are more robust than those that vendors or RECs provide.[5]

CHC networks originated in the mid-1990s, when the Health Resources and Services Administration (HRSA) used its leverage as payer, grantmaking agency, and regulator to encourage CHCs to invest in joint ventures that would create common network infrastructure (potentially enabling economies of scale and reduced business and administrative costs) and would improve CHC organizational learning, contracting leverage with other organizations, and advocacy for funding. Beginning in 2000, HRSA funded some CHC networks to provide EHR services. Separately, HRSA funded health disparities collaboratives to spread quality improvement innovations and learning among CHCs to increase chronic and preventive care.[6]

Since many CHCs are adopting EHRs, we studied the role of five networks that helped 15 member CHCs adopt and use EHRs for chronic and preventive care. We examined network-provided EHR services, perceived benefits from and frustrations with network participation, challenges networks face in helping CHCs use EHRs for chronic and preventive care, and policy options that could address the challenges.

The study's CHC network cases have gained experience and evolved since we last obtained data from them in July 2009. Nevertheless, HRSA's decision to fund dozens of CHC networks to provide EHR services means that many CHC networks will confront challenges similar to those that study cases encountered, while all CHC networks will confront several systemic challenges identified here.

METHODS

We aimed to select a purposeful sample of five CHC networks that had provided EHR services for over 18 months—that is, they were beyond the start-up phase—and wanted to expand. We identified 12 CHC networks that might meet study criteria. Of those, 10 responded, seven met the criteria, and six were willing to participate. We selected the three largest CHC networks providing EHR services as of 2008—Alliance of Chicago, Health Choice Network, and Our Community Health Information Network (OCHIN)—plus PTSO of Washington (PTSO), and Community Partners HealthNet of North Carolina. Within each network, we selected a purposeful sample of three CHCs that had received EHR services in major clinics for at least 18 months and were diverse in size and experiences using EHRs. From January 2008 to July 2009, we interviewed CHC clinical leaders, clinicians, senior executives and managers, and technical and clinical staff using a semi-structured interview survey. We coded and analyzed 83 hours of interviewee data from 71 interviewees. See Appendix 1 and Appendix 2 for details of methods and network characteristics.

FINDINGS

Networks had common organizational elements, but varied in key respects.

All networks consisted of the network entity providing services, CHC network governance committees, and CHC members receiving services. The network entity employed its own executives and staff, supported by CHC subscription fees and funding from HRSA and elsewhere. CHC network clinical committees, typically comprising CHC medical directors and network staff, provided most clinical expertise for network efforts, while network executive boards, comprising mostly CHC chief executive officers, set overall network policies.

The five network cases varied in their integration, clinical direction, and level of services provided. Alliance of Chicago had the most integrated model of network and CHC operations, with the closest contractual and informal ties among its four founding members, the most active and best-supported CHC network clinical committee, the most shared EHRs and quality personnel among network and CHCs, and the most network services—the latter included software configuration, training, and reporting that supported EHR use for chronic and preventive care. In contrast, Community Partners HealthNet of North Carolina had the most federated model. It acted more as a purchasing cooperative, with the fewest organizational ties, least active clinical committee, and fewest technical or quality improvement services. Instead, it delegated software hosting, database management, and other services to some of its CHC members, in part because of rural bandwidth challenges. The other three networks were in between these two poles. In this analysis, we focused most on the four networks that had more substantial service offerings than the North Carolina network.

CHC providers and managers needed five types of support services.

To provide patients with medical homes and meet meaningful-use criteria, CHCs needed five types of services, including:

- More support to implement the EHR software and minimize technical problems that decreased provider productivity and time for chronic and preventive care. They needed software that ran 24/7, was responsive (i.e., did not keep providers waiting), and had few bugs or glitches. They also needed functioning data exchange interfaces with labs to send orders and receive results.

- Better documentation templates (i.e., electronic forms), and decision-support tools (i.e., flow-sheets and reminders) to support chronic and preventive care than is found in "out-of-the-box" EHR software. This enables providers to more efficiently document visits, generate better notes, capture coded data necessary for reminders and reporting, and see more accurate reminders during visits.

- Better reporting systems that were easier to use. This allows staff to use registry functions to generate lists of patients needing follow-up for chronic and preventive care and reports on provider or team performance in serving chronic and preventive care patient panels.

- More post-implementation support to increase the efficiency of provider EHR use for chronic and preventive care, particularly retraining providers and changing office workflow.

- More clinical leadership and more support for that clinical leadership to help providers and staff use EHRs for chronic and preventive care.

Networks provided robust EHR technical services.

Network technical EHR services were extensive. Network staff configured EHR software and databases, hosted application software and managed databases, modified basic visit templates (i.e., electronic forms), built data exchange interfaces to electronically transmit orders and results to and from labs, fixed software bugs, maintained databases, and upgraded software. They also helped redesign workflows to accommodate

EHR use, trained CHC providers' staff to use the EHR, provided support during EHR implementations, and provided ongoing help desk support.

Interviewees generally praised network implementation and technical services, which improved over time. The largest CHCs supplemented network efforts with their own implementation and technical staff.

Networks helped to share best practices.

At network meetings, clinical leaders facilitated discussion of best practices. One CHC medical director stated, "The network medical director does presentations on best practices. I go to these meetings once a month. They're extremely helpful and I learn so much every time I go. We've implemented a lot of things here that were based on my attending meetings." In two networks, comparisons of chronic and preventive care performance reports spurred friendly competition among CHCs and helped some clinical leaders pressure others to support network activities that promoted best practices.

Four networks improved software used for chronic and preventive care.

Templates and reminders. Out-of the box EHR software is often neither easy to use nor useful for providers during visits. Through numerous discussions, the CHC network clinical committees "embedded quality into the EHR" by incorporating clinical guidelines into visit templates and reminders, which also increased their ease-of-use. Two networks emphasized use of longitudinal patient flowsheets that also helped providers to view past data, see what tests were needed, and capture coded patient data. Network technical staff supported CHC network clinical committees by developing prototypes of new forms, reminders, and flowsheets; modifying associated databases; and making numerous related software changes.

In contrast to templates, networks had implemented few point-of-care reminders, which were technically more complex and required accurate, coded data. Alliance of Chicago provided the most usable reminders, OCHIN had enabled only two reminders, PTSO's reminders were limited by software

flaws, and HCN had none that were easy to use. Both Health Choice Network and PTSO were awaiting new software. Community Partners HealthNet of North Carolina delegated to CHCs many responsibilities for template and reminder creation.

Reporting systems. Given highly limited out-of-the-box EHR reporting capabilities, Alliance of Chicago, Health Choice Network, and OCHIN clinical committees were developing systems to generate reports on provider performance and on patients needing specific chronic and preventive care services. Despite much time-consuming effort, progress was slow. Alliance of Chicago had launched its reporting system only in 2008, after two years of effort. Health Choice Network and OCHIN were still piloting systems, also after much effort. All three networks were working on creating more measures and enabling end-users to manipulate and view data more easily. Three large CHCs had developed their own reporting systems independently of their networks.

Even large CHCs saw benefits from participating in software modification that had input from leaders in multiple CHCs (Appendix 3).

One network provided substantial post-implementation support services.

Among the networks, Alliance of Chicago provided the most post-implementation services that increased EHR use for chronic and preventive care.

Improving efficiency of EHR use. More efficient EHR use improved productivity and thus provider time available for chronic and preventive care. Alliance of Chicago's medical director engaged in intensive observation and retraining of providers on many topics, from helping them understand the importance of using custom problem and medication lists to understanding how to more quickly see past visit notes.

Improving effectiveness of EHR use for chronic and preventive care. Even with improved software, much additional support was necessary to enable effective use of chronic and preventive care reminders, flowsheets, and reporting. For example, Alliance of Chicago's medical director helped CHCs to improve

data accuracy (e.g., by making sure that providers entered coded data correctly and that lab data exchange interfaces worked properly); appropriately assign patients to a provider to allow for accurate reporting (e.g., by ensuring that a patient flagged as a diabetic was, in fact, diabetic and seen by a particular provider or team); and redesign patient office visit workflows.

Support for CHC clinical leaders. Both the Alliance of Chicago and Health Choice Network medical directors supported their CHC network clinical committees, taking responsibility for EHR software clinical content and guiding CHC medical directors toward consensus on national guidelines and protocols to be embedded within the software. However, only Alliance of Chicago's medical director systematically supported CHC medical directors, who were seen as critical for getting providers to use EHRs for chronic and preventive care and yet were subject to burn-out–induced turnover. The Alliance of Chicago medical director described his role as:

> Listening to them [medical directors]; offering advice when they ask for it; providing them with experience about things that have worked well in the past; providing them resources in terms of connections with other people, projects, grants, and research; and helping them to understand that there are many other people going through difficult issues similar to what they are facing and that there are ways that medical directors can work together as a group.

Alliance of Chicago also strongly encouraged each CHC's leadership team to fund strong nursing leadership to support the CHC's medical director. This extra support helped "to keep the CHC providers and staff happy and functioning efficiently, which allows the CHC medical director to work proactively on issues rather than reacting to fires on a day to day basis," said an Alliance of Chicago leader.

It was especially important for CHC-level nursing leadership to help medical directors generate reports and make sure data were accurate—and if not, identify data problems and make changes in order to solve them. According to one Alliance of Chicago leader:

> In order to figure out why, for example, numbers of needed tests are not going up, someone (e.g., a nursing leader) has to know the detail about how the health center operates. Not to just analyze the data but also to understand what's in the workflow that's preventing the A1c test from getting ordered every visit.

In other networks, a few well-resourced CHCs provided their own post-implementation EHR support services. However, other CHCs with fewer resources were challenged to provide post-implementation support services critical for improving chronic and preventive care.

None of the networks provided systematic training in quality improvement methods.

External organizations played a more important role than did networks in quality improvement training. For example, a Medicaid, HMO-funded, primary care quality improvement collaborative helped two OCHIN CHCs learn best practices from other CHCs, redesign work processes to emphasize team care and visit preparation, and hire additional staff for care teams. In addition, Institute for Healthcare Improvement courses helped quality improvement efforts at several CHCs. Two large CHCs, although none of the networks, had their own intensive, systematic programs to spread learning among CHC sites.

Networks faced formidable barriers to helping CHCs improve chronic/preventive care.

Limited software. Software limitations reduced provider productivity and thus time available for chronic and preventive care, and reduced the use of reminders and quality reporting. Meanwhile, addressing these limitations occupied scarce clinical and technical staff in all networks, limiting their ability to provide post-implementation services. Some networks were

particularly hard hit. Limited or missing EHR capabilities and software bugs and glitches effectively prevented use of reminders in Health Choice Network and PTSO, respectively. In addition, codeveloping software with the EHR vendor consumed Health Choice Network staff time, software bugs and glitches bogged down PTSO's network staff, and debugging software upgrades consumed scarce staff resources at Health Choice Network, PTSO, and Community Partners HealthNet of North Carolina.

Lack of network resources. Alliance of Chicago provided the most clinical leader and staff time to support CHC chronic and preventive care efforts (see text box). However, most networks lacked sufficient medical director and clinical support staff time. While CHCs contributed clinical leader time to network activities, most CHCs saw network work as reducing their clinical leaders' limited time for CHC work, which they saw as more important. Most networks also lacked sufficient staff time to support network clinical committees and provide post-implementation services. "The network staff and clinical committee have these great things that they want to do but don't have the manpower and money to do them," said one CHC leader. Without adequate network clinical leadership and support staff, clinical committees spent too much time on minute details of changing templates or reminders or other software, and too little time

working on broader quality improvement strategies and issues that could have a much larger impact.

CHC networks lacked a sustainable business model to pay for more network leadership and staff time and quality-improvement-focused EHR services. There were several reasons for this deficit: most HRSA EHR grants to networks did not permit spending on quality improvement-focused services; intense software price competition among networks and vendors strained network finances and ability to cross-subsidize quality improvement-focused services, network growth and support for quality improvement competed for limited resources; and lack of reimbursement for quality reduced the willingness of CHCs to pay for network services that enhanced quality.

Even if they had funding, networks lacked a pool of talented leaders from which they could recruit, as CHCs were loathe to promote talented leaders to the network. Meanwhile, any non-CHC provider leaders hired by a network would need substantial time to establish sufficient trust and CHC expertise.

Organizational structure of the CHC sector. In addressing funding and recruiting barriers, networks faced two fundamental problems. First, CHC members were autonomous business entities that focused on meeting their own EHR needs, not those of the network or of other CHCs. Second, there were substantial disparities among CHC members in terms of

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The Alliance of Chicago: Focus on Clinical Quality Improvement

From its inception, Alliance of Chicago focused more on clinical quality improvement and devoted more clinical leadership time to using EHRs for quality improvement than did other networks. Alliance of Chicago's chief executive officer and medical directors had been CHC medical directors; the chief operating officer and several software developers had clinical quality improvement backgrounds. In addition, it had the most comprehensive vision of integrating quality-focused EHR services by developing performance report measures, revising templates and flowsheets to capture data, creating reminders and lists of patients needing services to improve performance, and training providers to use the new capabilities.

The network's four founding CHCs had promoted the most clinical personnel to the network, made possible by years of cooperative work by CHC leadership, a common belief that promoting people would repay all CHCs in quality improvement benefit, and some dual appointments (i.e., sharing of clinical personnel) between the network and CHCs.

clinical leadership and financial resources. In some CHCs, clinical leaders had more experience in quality improvement, a clearer vision and commitment to quality improvement, greater backing from nonclinical leaders, better focus on performance measurement and feedback, more training in quality improvement methods, better understanding of innovations in chronic and preventive care and EHR use for quality improvement, better ability to support providers in EHR use, and more technology-savvy super-users.

The combination of business autonomy and resource diversity could work for the network only if the CHCs with the most resources to contribute also gained the most from participating in the network. In fact, the reverse was often true: CHCs with the most resources often needed the network the least, while CHCs with the fewest resources tended to express the strongest need and appreciation for the network.

Joint venture trust and commitment. Founding members of Alliance of Chicago and Health Choice Network expressed the most trust and commitment toward network operations, which contributes to the success of joint ventures.[7] An important factor that undermined trust was frustration with the speed of network decision-making (because of the number of organizations involved) and with some network priorities for allocating resources (because of differing needs among organizations).

DISCUSSION

Networks that participated in this study provided member CHCs with reliable EHR technical services and improved software—two conditions for increasing EHR use for chronic and preventive care. Compared with individual CHCs, networks:

- achieved economies of scale because they could hire staff with costly, highly specialized expertise that could create quality improvement software modifications for each network, not for each CHC;

- were better learning organizations because network staff had more opportunities to learn by doing;

- could tap more human and intellectual capital expertise of members; and

- could more easily share best practices.

Interviewees from even the largest and most resource-rich CHCs said it would have been difficult and more costly to match some network-provided EHR services.

Yet, networks providing EHR services faced strong barriers to helping CHCs increase EHR use for chronic and preventive care. Environmental barriers included software limitations and flawed reimbursement for improving chronic and preventive care, while organizational barriers included shortages of network resources for quality improvement, CHC autonomy and resource disparities, and concerns around trust and control.

CHC autonomy was the single most challenging barrier that networks faced in spreading quality-focused EHR services. A CHC with excellent resources and best practices typically had few incentives to share intellectual capital and move resources to the network or to other CHCs, even if those resources could have a far greater impact on quality of care. Without strong incentives to share, clinical leadership and financial resources tended to remain "bottled up" in well-resourced CHCs and mostly out of reach of either the networks or of the CHCs with fewer resources.

Alliance of Chicago was the exception to the rule. Yet, absent a change in public policies, replicating the model will be challenging, given Alliance of Chicago's unique history that broke down CHC autonomy sufficiently to enable resource sharing.

Previous HRSA policies aimed to accelerate EHR adoption, but new policies also must accelerate EHR use for quality improvement. Some environmental changes aid that shift. For instance, ARRA incentives for EHR meaningful use motivate vendors to improve quality improvement software and CHC managements and boards to use EHRs for chronic and preventive care.

Beyond simply funding more quality-enhancing EHR services, policies must tackle difficult

political and organizational obstacles to sharing the scarce human and intellectual capital needed to use EHRs effectively. New policies require a more quality-focused HRSA, a more self-organized CHC sector, and new norms and expectations about moving resources from individual CHCs to collaborative ventures to improve quality performance. Public policies to help networks increase EHR use for chronic and preventive care include the following:

Fund proven CHC networks to provide quality-focused EHR services. Funding networks to provide quality improvement-focused EHR services would enable networks to hire medical directors and clinical staff to provide leadership, support network clinical committees, and provide hands-on postimplementation support services. Networks could directly provide individual CHCs with EHR quality improvement services or could provide selected services to regional CHC networks that could then offer services to their members.

Funding proven CHC networks acknowledges that it takes years to ascend steep EHR learning curves and develop the human and intellectual capital and trust needed to successfully provide EHR service and that it is costly for new networks to "rediscover the wheel." One interviewee commented that while HRSA's past approach to "let a thousand flowers bloom" by funding many networks stimulated creativity, HRSA now needs to finance successful networks.

Compensate CHCs for sharing clinical leadership resources. Policies must sufficiently compensate CHCs that incur quality and productivity losses when they promote clinical leadership and staff resources to the network and contribute their time for network activities.

Use financial incentives as levers to effect change. HRSA accounted for 18 percent of all CHC revenues in 2009, yet its lump-sum (Section 330) payments to CHCs do not promote fairness, efficiency, or quality.[8] Beyond risk-adjusting HRSA's payments for differences in patient health among CHCs, HRSA could use some payments to incentivize CHC groups or networks to improve quality, including through use

of EHR services. While the meaningful-use incentives established by the Centers for Medicare and Medicaid Services will help, requiring Medicaid HMOs to increase pay-for-performance and medical homes payments and tying some Section 330 payment to improving individual CHC performance measures would further spur CHC demand for network quality improvement services.

Fund a national-level CHC organization. A more powerful national-level CHC organization—the product of a "network of networks" or through the expansion of existing CHC national organizations—could negotiate with HRSA on objectives for using EHRs for quality and lead in implementing them. Aside from reaping some economies of scale in providing EHR services that improve quality, it could become a more powerful learning organization by leveraging intellectual and human capital among CHCs and better disseminating quality-focused learning. Specifically, a national CHC organization could help CHCs meet and exceed meaningful-use objectives by: 1) establishing more common quality improvement performance goals and measures and standardized methods to improve data quality and comparability; 2) contracting with leading CHC networks to improve software and leverage network requests to vendors to make quality-focused software changes; 3) sharing best practices in improving quality, including through EHR consulting services; and 4) training CHCs in quality improvement methods.

Promote systemness. Increasing CHC sector systemness requires moving limited resources among CHCs and networks in order to improve efficiency and quality performance more rapidly. It also involves more generally transforming the sector from a loose collection of CHCs into a high-performing system, analogous to the transformation attempted in the Veterans Health Administration system.[9]

More is at stake than simply increasing the pace of EHR use for improving quality. For years, as CHCs benefitted from increased federal funding, CHC sector organizations were comfortable continuing the status quo instead of creating strong regional or national CHC organizations, including well-funded,

highly capable networks that could provide EHR services. A shifting health care environment may force new thinking. Emerging accountable care organizations may try to include only CHCs with stronger finances and leadership or may attract existing and newly insured Medicaid enrollees, leaving CHCs with relatively weak networks, limited bargaining power, and fewer patients. Other unanticipated changes triggered by health care reform legislation could pose other threats, as well as opportunities. Many CHCs could struggle in this new environment, unless they create stronger joint venture organizations that can more rapidly improve quality and efficiency and help CHCs become more powerful players in a changing and competitive health care system.

NOTES

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2   National Association of Community Health Centers, *Community Health Centers and Health Reform: Summary of Key Health Center Provisions* (Washington, D.C.: NACHC, 2010).

3   W. S. Bernstein, H. R. Pfister, and S. R. Ingargiola, "HITECH Revisited" (Washington, D.C.: Manatt Health Solutions, June 2010); and D. Blumenthal and M. Tavenner, "The 'Meaningful Use' Regulation for Electronic Health Records," *New England Journal of Medicine,* Aug. 5, 2010 363(6):501–4.

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7   A. C. Inkpen and S. C. Currall, "The Nature, Antecedents, and Consequences of Joint Venture Trust," *Journal of International Management,* July 1998 4(1):1–20.

8   HRSA, *Health Center Data,* 2010.

9   S. M. Shortell, "The Evolution of Hospital Systems: Unfulfilled Promises and Self-Fulfilling Prophesies," *Medical Care Review,* Fall 1988 45(2):177–214; and A. Oliver, "Public-Sector Health-Care Reforms That Work? A Case Study of the U.S. Veterans Health Administration," *The Lancet,* April 5, 2008 371(9619):1211–13.

Appendix 1. Methodology

We identified a purposeful sample of CHC networks providing EHR services for more than 18 months by reviewing past Health Resources and Services Administration grants and CHC network studies and conducting a scan of CHC networks.[a,b] Networks varied in many ways, including when they started providing EHR services, EHR products used, number of CHC members and billing providers, history, resources, and scope of services. Four networks had implemented their EHR vendor's electronic practice management software for billing, registration, and scheduling. CHC characteristics varied (See Appendix 2). For example, the number of CHC physicians ranged from three to more than 50. Because of their status as EHR early adopters, many CHCs in this study had a median size greater than most CHCs, as well as more leadership and financial and other resources than other CHCs of similar size. We identified themes using pattern-matching and explanation-building methods used in qualitative research.[c]

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[a]   D. Gaylin, S. Goldman, A. Ketchel et al., *Community Health Center Information Systems Assessment: Issues and Opportunities*, *Final Report* (Chicago: National Opinion Research Center, University of Chicago, 2005).

[b]   R. H. Miller and C. E. West, "The Value of Electronic Health Records in Community Health Centers: Policy Implications," *Health Affairs,* Jan. 2007 26(1):206–14.

[c]   R. Yin, *Case Study Research: Design and Methods, Third Edition, Volume 5* (Thousand Oaks, Calif.: Sage Publications, 2003).

Appendix 2. Characteristics of Five Community Health Center Networks
Providing EHR Services, 2009

	Alliance of Chicago (AC)	Community Partners HealthNet of North Carolina (NC)	Health Choice Network (HCN)	Our Community Health Information Network (OCHIN)	PTSO of Washington (PTSO)
Founded	1997	1999	1994	2001	2004
Began providing EHR services	2005–06	2004	2004	2005	2006
CHC members	23	7	65	30	6
CHCs using EHRs	17	6	23	13	5
Billing providers using EHR	150	100	400	387	153
EHR product/vendor	Centricity/GE	Micro MD/ Henry Schein	Medical Manager, converting to Intergy/Sage	EpicCare/ Epic Systems	NextGen/ QSI, Inc.

Notes: FTE = full-time equivalent; CHC = community health center; EHR = electronic health record.
Billing provider is a physician, nurse practitioner, physician assistant, or certified nurse midwife.
Source: Authors' own data.

Appendix 3. Benefits of Participating in Community Health Center Networks
Providing Electronic Health Record Services: Selected Interviewee Comments

On maintenance/backbone services:
"We used to have people running around hysterical when we tried to run our own network. Every time someone resigned it was a crisis maintaining 24-hour coverage. The CHC network has done a really good job with that. I'm not a computer person and I don't want to be. I want to be a health director. It is so liberating when you can do what you know you need to do."
            —Executive, CHC

"We looked at how to improve our IT systems alone. We liked some of these more expensive programs. We were big, but not big enough to go off on our own so we looked at how we could collaborate. We leveraged economies of scale by us pulling together."
            —Executive, CHC

On overall benefits from network participation, even for very large CHCs:
"All of the maintenance on the servers, the upgrades, software development—we would need additional staff to do that. Even without major software development, there are always things that need to be tweaked—the templates, minor bugs, or providers convinced that if they don't have certain features, they won't be able to provide good care. There is a big benefit in having the network do those things for several organizations. We could do it, but would need more staff and then we wouldn't have other sites to bounce ideas off of and to share expertise. We are better off with more of us participating and sharing best practices and thinking about solutions to things than if we were alone."
            —Manager, large CHC

"If I had a choice to work within an organization that did everything itself or one that worked with a network, I would choose the network every time. It forces you to work with other people, to think outside the box. You end up with a better product."
            —Manager, large CHC

On the importance of networks, especially for smaller organizations:
"As much as the network has been a problem at times—because group priorities are not necessarily our priorities—we would not have had an EHR if we didn't do this collaboratively because we're too small. We never would have been able to do it ourselves."
            —Executive director, smaller CHC

"Once you have the EHR up and running, the battle is barely won. The network could help most by developing ancillary stuff, like reporting, clinical decision support, SureScripts (CHC to pharmacy data exchange), other third-party software. The network can really advance things because smaller groups or rural places more than ever need 'the package.' CHCs say, 'What I really want is for you to take what you've got, wrap it up, put on a bow, and hand it to me, so when I go to my clinic, I open it and have everything you have.' The network can assume that role."
            —Medical director, large CHC

Source: Authors' own data.

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