



REC Program Evaluation Interim Report: Round 1 Case Studies

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Executive Summary

The Regional Extension Center (REC) program, funded by the Office of the National Coordinator for Health Information Technology (ONC) under the Health Information Technology for Economic and Clinical Health (HITECH) Act of 2009, provided 62 grants to 60 organizations across the United States to provide technical assistance (TA) to physicians and other health care providers in small practices to adopt, implement, and meaningfully use electronic medical records. The ONC contracted with American Institutes for Research[®] (AIR[®]) to conduct a multiyear, mixed-method, independent national program evaluation of the REC program. As part of this evaluation, AIR conducted in depth case studies of nine REC programs. This report summarizes key findings from these nine case studies, describing how RECs operationalize and implement their programs. The key findings are as follows:

REC structures and operational models

- Many RECs operated within existing networks of organizations committed to health care transformation. For example, RECs often collaborate with professional associations and state Medicaid and health information technology (HIT) offices.
- Many RECs hold funding for multiple federal healthcare transformation programs such as the state Health Information Exchange, Beacon Community, and Quality Improvement Organization programs.
- RECs were flexible with TA staffing because of the evolving nature of HIT professionals' labor supply and demand. For example, one REC created TA teams consisting of one IT expert and one person with clinical experience to work collaboratively with providers.

Outreach and recruitment activities

- RECs used multiple angles to communicate the value proposition of implementing and meaningfully using electronic health records (EHRs) and REC services, such as emphasizing the potential benefits for patient care and the availability of incentive monies to support the process.
- RECs partnered with established community organizations already trusted by eligible providers to aid access to and credibility with providers.

Technical assistance activities

- RECs offer a comprehensive menu of services to support providers' achievement of meaningful use (MU), including assistance with EHR selection, workflow changes, and MU attestation.

Common challenges

- Provider resistance to EHR technology and MU was a challenge during the provider recruitment phase, and some providers continued to eschew EHRs and MU throughout their enrollment in the REC program.

- Perceptions of poor EHR product usability and the unsavory business practices of some vendors made supporting MU difficult.
- The volume, complexity, and sometimes conflicting information available about the EHR Incentive Programs made communicating accurate and timely information to providers about the requirements difficult.
- Because a large proportion of RECs' grant funds are disbursed after milestone achievement, RECs that were startups found it difficult to engage in broad-scale recruitment and outreach during the early phases of the grant period because they had access to fewer capital funds that could be used to supplement the core funding associated with the REC program.
- Some Medicaid EHR incentive program timelines, delays, and administrative challenges became problematic for RECs targeting providers that intended to attest for this incentive program.
- Sustaining RECs may be challenging because providers may be unable or unwilling to pay for REC services. In addition, RECs that are also Medicare Quality Improvement Organizations may face unique challenges to sustainability associated with the constraints connected to accepting money from providers.
- Although RECs that subcontracted out technical assistance (TA) benefitted from easier access to and increased credibility with providers, these RECs also found it difficult to ensure consistent quality across subcontracting organizations and to develop their own name recognition among providers.
- Large health systems' acquisition of small medical practices reduced the pool of priority primary care providers eligible for ONC-subsidized REC assistance in many locales.

Three overarching best practices for successfully helping providers achieve MU emerged from the data: (1) strategic partnerships with key community stakeholders and advisors; (2) staffing models that explicitly include TA staff with both clinical and information technology skill sets; and (3) using a champion to engage and sustain provider involvement in the transition from paper to MU. Strategic partnerships provided access to and credibility with providers during the outreach and recruitment phase of the RECs' programs and likely increased overall visibility and uptake of HIT in communities where such partnerships existed. Employing TA staff with both clinical and information technology skill sets allowed the RECs to provide the full scope of services that providers needed to achieve MU. Their clinical training and experience also gave the information technology advisors more credibility with providers. Using physician champions—a clinician prominent in the provider community who helps shape and lend credibility to the legitimacy and utility of the REC program—helped RECs meet their recruitment goals quickly. Office champions—individuals within a practice committed to guiding the practice through the transition from paper all the way to MU—kept providers in the practice organized and engaged throughout the process in between visits from REC TA staff. According to key informants, there did not seem to be a best practice for overcoming one of the most difficult challenges RECs faced: poor EHR product usability and the unsavory business practices of some vendors. RECs used various strategies to counteract this challenge, but with limited success.

Introduction and Background

The Regional Extension Center (REC) Program was created by the 2009 Health Information Technology for Economic and Clinical Health (HITECH) Act to help health care providers with limited resources adopt, implement, and meaningfully use electronic health record (EHR) systems.¹ The Office of the National Coordinator for Health Information Technology (ONC) funded 62 RECs to provide TA to providers in their local areas. Small, independent primary care practices with fewer than 10 clinicians, community health centers, rural health clinics, and critical access hospitals (CAHs) are eligible to receive assistance from RECs. These providers were selected to receive REC services because, in most cases, they have lower rates of EHR adoption than larger, more complex organizations and they generally lack the resources to investigate, adopt, and maintain EHR systems.² Thus, the REC program is intended to prevent the widening of the digital divide by increasing the rate of meaningful EHR adoption among providers who are least likely to adopt them on their own initiative without external assistance.

The REC program is modeled after the highly successful, centralized diffusion of innovation (DOI) and technology transfer model created by Congress and the U.S. Department of Agriculture (USDA) more than a century ago.³ In 1914, the Smith-Lever Act established a partnership between land grant universities and the USDA to provide for cooperative agricultural extension work. The purpose of the Smith-Lever Act was to “aid in diffusing among the people of the U.S. useful and practical information on subjects related to agriculture and home economics, and to encourage the application of the same.”⁴ At the heart of agricultural extension work, according to the Act, was:

- Developing practical applications of research knowledge
- Giving instruction and practical demonstrations of existing or improved practices or technologies in agriculture⁵

The Smith-Lever Act mandated that the federal government (through USDA) provide each state with funds to support these goals. Extension programs are administered through thousands of county and regional extension offices, who work with land-grant universities to bring expert knowledge to local communities. Since the establishment of the Extension program, the United States has experienced dramatic increases in farm productivity. This increased productivity resulted from increased mechanization, commercial fertilizers, new hybrid seeds, and other technologies.⁵ Extension played an important role in offering these new technologies to U.S. farmers and ranchers.⁵

¹ The HITECH Act was enacted as title XIII of division A and title IV of division B of the Recovery Act. Pub. L. No. 111-5, div. A, tit. XIII, 123 Stat. 115, 226-279 and div. B, tit. IV, 123 Stat. 115, 467-496 (2009).

² Mostashari, F., Tripathi, M., & Kendall, M. (2009). A tale of two large community electronic health record extension projects. *Health Affairs*, 28(2), 345–356.

³ Grumbach, K., & Mold, J. W. (2009). A health care cooperative extension service. *Journal of the American Medical Association*, 301(24), 2589–2591.

⁴ Ramussen, W. D. (2002). *Taking the university to the people: Seventy-five years of cooperative extension*. West Lafayette, IN: Purdue University Press.

⁵ <http://www.csrees.usda.gov/qlinks/extension.html#yesterday>

Although the number of local extension offices has declined over the years, and some county offices have consolidated into regional extension centers, approximately 2,900 agricultural extension offices remain nationwide. These offices continue to help provide “quality information, education, and problem-solving programs on real concerns.”⁴

The REC program is intended to create a similar infrastructure for the diffusion of expert knowledge regarding adoption, implementation, and meaningful use (MU) of EHRs throughout the U.S. health care system. The 62 RECs are funded by the federal government (through the ONC), target small practices (less than 10 providers), federally qualified health centers, rural health centers, and critical access hospitals, and are located throughout the country. Each REC has the flexibility to adapt and disseminate EHR and MU information in the ways most appropriate for local needs.

The RECs are supported in their efforts by the Health Information Technology Resource Center (HITRC), an online community that REC staff and affiliates can access for help in bringing providers to MU. The HITRC gathers and disseminates lessons learned and best practices from the RECs, manages the National Learning Consortium to enable RECs to learn from each other, and facilitates REC networking.

The RECs also operate within a constellation of federal programs designed to facilitate providers’ fast and efficient adoption and optimization of EHR technology by offering them incentives to embrace EHRs and the regulation of EHR products. The Centers for Medicare & Medicaid Services (CMS) administer EHR incentive programs that provide incentive payments to health care providers who use EHRs meaningfully—that is, in ways that are believed to improve health care delivery. The payments are intended to offset much of the cost of purchasing EHR systems from commercial vendors. In stage 1 of the incentive programs,⁶ providers who wish to receive incentive payments must meet 15 specified core objectives established by ONC for the MU of EHRs and report 3 specific clinical quality measures using data from their EHR system (see Appendix 1). In stage 1, participating providers must also choose an additional five objectives and three clinical quality measures to report from a list of objectives and measures developed by ONC and released through CMS, which administers the Medicare and Medicaid EHR Incentive Programs in stage 1 of the incentive program.⁷

Interested clinicians must choose either the Medicare or Medicaid EHR incentive program. Only physicians are eligible to receive incentives under the Medicare program. The total incentive available per physician is \$44,000, disbursed over 5 years. Physicians who do not demonstrate MU by 2015 face penalties in the form of reduced reimbursements for Medicare claims. The reductions begin at 1 percent in 2015 and increase to 5 percent over several years. Under the Medicaid EHR incentive program, not only physicians but nurse practitioners, physician assistants, certified nurse midwives, dentists, and hospitals are eligible to receive incentive payments. These eligible providers can receive up to \$67,500 in incentive payments over 6 years. In addition to demonstrating MU, eligible providers participating in the Medicaid EHR program

⁶ Stage 1 of MU involves capturing and sharing data. Future stages of MU will focus on advanced clinical processes and improved outcomes.

⁷ <https://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/downloads/EP-MU-TOC.pdf>

can also receive incentive payments for adopting, implementing, or upgrading an EHR system; this is referred to as “AIU.” No penalties are associated with the Medicaid EHR program.

To receive incentive payments, eligible providers must be using a certified EHR product. The ONC Certification Program tests and certifies that EHR products meet the standards and certification criteria established by the U.S. Department of Health and Human Services. These certification criteria align with MU criteria and ensure that EHR technology can be used to meet MU objectives and measures.

The REC program’s goal is to help 100,000 priority primary care providers achieve MU of an EHR by 2014. Priority primary care providers are defined as health care providers who work in solo or small (fewer than 10 physicians) independent practices, critical access hospitals, rural health centers, community health centers, and other health care organizations that serve underserved populations. This 100,000-provider goal is divided among the RECs, with each REC setting a specific target. RECs’ total potential grant award is based on their individual provider targets. RECs receive an initial administrative startup payment, but the availability of additional funds depends on helping providers achieve program milestones. Milestone 1 is enrollment in the REC program. Milestone 2 is the implementation of a certified EHR system. Milestone 3 is achieving MU of the EHR.

Although RECs share the common goal of helping providers reach MU with their EHRs, RECs operationalize their programs in different ways. This variation in program operationalization reflects the advantage of the extension model: RECs have the flexibility to respond to the needs of the local community. To evaluate the efficacy of the REC program as a whole, it is necessary to characterize and explain this variation. Thus, the purpose of this report is to describe the structure and activities of the RECs, to assess the contextual conditions that help explain variations in program implementation and operation, and to identify the facilitators and challenges associated with achieving program goals.

Data and Methods

Data for this report came from interviews and focus groups with REC staff, REC external advisors and community stakeholders, and EHR product vendors.⁸ With input from ONC, AIR selected a sample of nine RECs for in depth case studies. AIR selected the three highest performing RECs and three lowest performing RECs, in terms of the percentage of participating providers that had achieved Milestone 3 (MU) compared to the percentage expected to achieve MU. The expected percentage was calculated as the mean for all RECs adjusted for local area and REC characteristics. High performers were defined as RECs that exceeded their expected percentage, and low performers were those that fell below their expected percentage. Appendix 2 describes this selection process in detail. An additional three RECs were chosen by ONC based on their commendable work with particular types of clients, such as rural health centers. The nine RECs that received in depth case studies were:

1. California Health Information Partnership and Services Organization (CaHIPSO)

⁸ AIR’s Institutional Review Board approved this study.

2. Chesapeake Regional Information System for Our Patients (CRISP; Maryland)
3. Colorado Regional Extension Center (COREC)
4. Louisiana Health Information Technology Resource Center (LHIT)
5. Minnesota/North Dakota Regional Extension and Assistance Center for Health Information Technology (MN/ND REACH)
6. Pennsylvania Regional Extension and Assistance Center for Health Information Technology–East (PA REACH–East)
7. Regional Extension Center of New Hampshire (RECNH)
8. Tri-state Regional Extension Center (Tri-state REC; spans Ohio, Kentucky, and Indiana)
9. Wide River Technology Extension Center (Wide River TEC; Nebraska)

Within each REC, the evaluation team interviewed individuals in a number of key roles. Exhibit 2 lists interviewees’ roles and responsibilities. A total of 138 in depth interviews with 177 individuals were conducted across the nine RECs during the summer of 2012. All but one of the selected RECs received in-person site visits as part of the data collection. Interviews with the remaining REC were conducted by telephone.

Exhibit 2: Interviewee Categories and Roles

Respondent Category	Description of title/role
REC	<ul style="list-style-type: none"> ▪ Leadership (e.g., Directors, co-Directors, and/or Chief Financial Officers) ▪ Staff members and subcontractors with knowledge of activities contributing to functional activities (e.g., consultants, technical support staff)
Clients	<ul style="list-style-type: none"> ▪ Executive level (people responsible for making the decision to adopt EHRs and approving the financial investment to do so) ▪ Person(s) on staff in charge of the actual rollout (working with REC staff, working with vendors, coordinating staff training, and others) ▪ Users (e.g., doctors, nurses, patient registrars, office managers)
Vendors	<ul style="list-style-type: none"> ▪ High-level people involved in the business and/or marketing and promotions
Advisors and partners	<ul style="list-style-type: none"> ▪ Clinical (medical associations, academic medical centers) ▪ Technological (EHR specialists, academic centers) ▪ Governmental or policy (Medicare and/or Medicaid liaisons, quality improvement organization, health departments)
HIT-related groups	<ul style="list-style-type: none"> ▪ Health information exchanges ▪ Beacon leaders ▪ Community colleges ▪ State HIT coordinators

In addition to conducting in depth case studies of these nine RECs, AIR also conducted a 1-hour focus group with staff from other RECs during each of three ONC 2012 Regional Meetings in Baltimore, MD; Denver, CO; and St. Louis, MO. A total of 27 individuals participated in the

3 focus groups, representing an additional 22 RECs. The RECs represented in the focus groups included: Arizona, Hawaii, HITECH-LA, Illinois, Indiana, Iowa, Kansas, Maine, Michigan, Missouri, New Mexico, New York City REACH, New Jersey HITEC, Northeast Kentucky RHIO, Northern Illinois University, Ohio Health Information Partnership (OHIP), Quality Insights of Delaware, Rhode Island Quality Institute, South Dakota, Vermont, Washington HITEC, and West Virginia HITEC.

All interviews and focus groups were transcribed verbatim and systematically coded in NVivo 10.0 using codes developed by the evaluation team to answer the following research questions:

1. How do RECs structure and organize their programs?
2. What contextual conditions influence the implementation and operation of the REC programs?
3. How do RECs identify and recruit eligible providers?
4. What services do RECs provide to eligible providers?
5. What challenges do RECs face in helping providers achieve the three milestones?
6. What strategies do RECs use to overcome these challenges?

Six coders worked collaboratively, with checks for interrater reliability. The findings presented here reflect patterns related to program development, implementation, and operation both within and across RECs.

Findings

How do RECs structure and organize their programs? What contextual conditions influence the implementation and operation of the REC programs?

Variation among RECs was most pronounced in their structural and operational models, demonstrating how RECs represented in this report took advantage of the flexibility the REC model afforded them. This variation was related to the market, legislative, and other local conditions in which the RECs operated. In this section, we discuss several features that characterize the structure of RECs as well as the salient contextual conditions that shaped their program models.

RECs structured their programs to maximize synergy with other health care transformation initiatives

RECs that were funded by multiple federal programs sought to maximize the synergy between their REC activities and activities funded by other programs. The most common overlapping initiative was the state Health Information Exchange (state HIE) Cooperative Agreement Program. The state HIE Cooperative Agreement Program funds states' efforts to build capacity for exchanging health information across the health care system. The 56 funded HIEs build on

"I think the advantage of us being a Health Information Exchange operation at our core is that we're able to really hit hard on the meaningful use elements that require exchange and connection."

existing efforts to advance regional and state-level health information exchange with the goal of moving toward nationwide interoperability. Four of the case study RECs held state HIE grants.

The second most common overlapping initiative was CMS' Quality Improvement Organization Program. Quality Improvement Organizations (QIOs) are charged by CMS to improve the effectiveness, efficiency, economy, and quality of services delivered to Medicare beneficiaries. QIOs meet this objective by analyzing claims data, investigating complaints about quality of care, and working with clinical organizations to improve the quality of care. Three of the case study RECs are QIOs.

Several of the RECs were involved with the Beacon Community Cooperative Agreement Program (Beacon). The Beacon program funds communities that have demonstrated the ability to integrate EHR adoption, MU, and HIE to achieve the triple aims of better health, better care, and lower cost. There are 17 Beacon communities across the United States. One of the case study RECs, Tri-state, holds a Beacon grant. Four additional RECs operate in Beacon communities. Exhibit 3 summarizes the multiple awards held by the nine case study RECs.

RECs with funding for multiple initiatives sought to align the operations of these programs because they believed that alignment enhanced the chances of success for each program. These RECs also tried to communicate this integration to participating providers so that they would understand how the programs work together to achieve health care transformation. Efforts to align REC activities and the other health care initiatives included delivering services from multiple programs in an intuitively logical sequence. The typical sequence was to enroll a provider in a REC and provide adoption, implementation, and MU assistance; connect the provider to the state HIE; and then proceed to the quality improvement programs offered by the QIO or a Beacon collaborative. In some instances providers received services from multiple programs at the same time.

"We have the grant funding for the health information exchange as well. Because we're so involved with meaningful use and [are] starting to look at stage two, we know how important it's going to be to get these practices and hospitals on the HIE before stage two comes out or shortly thereafter. So we're absolutely talking about [HIE] in every practice that we're in."

For example, MN/ND REACH staff worked alongside QIO staff who were helping providers achieve patient-centered medical home status. Grantees with funding for multiple initiatives were careful to use and account for their grant funds appropriately—for example, using funds solely for the purpose of administering or operating a specific grant. However, they leveraged the activities of related programs to maximize resource efficiencies in other ways. For example, several RECs reported having staff that worked on multiple initiatives, conducting meetings with multiple programs' staff present to discuss individual progress and collaborative strategies for success, and making providers aware of all the organizations' program offerings at one time.

Exhibit 3: Case Study RECs That Hold Funding for Multiple Healthcare Transformation Initiatives

	state HIE	QIO	Beacon
Regional Extension Center of New Hampshire			
Pennsylvania Regional Extension and Assistance Center for Health Information Technology—East (PA REACH—East)		X	
Colorado Regional Extension Center	X		
Chesapeake Regional Information System for Our Patients (CRISP)	X		
Louisiana Health Care Quality Forum	X		
Greater Cincinnati Health Bridge	X		X
California Health Information Partnership and Services Organization (CalHIPSO)			
Wide River Technology Extension Center		X	
Minnesota/North Dakota REACH		X	

RECs emerged from pre-existing infrastructures for the diffusion of healthcare transformation initiatives

RECs in areas with a well-established infrastructure for the communication and provision of support to the medical community built their program models around large-scale collaborations. This strategy was intended to honor the community position of key stakeholders and to maintain vital institutional networks. In many cases, the community infrastructure that supported and developed RECs consisted of a wide range of organizations committed to and involved in health care delivery and information technology and was built over many years. In addition to the health care transformation programs cited above (state HIE, QIO, and Beacon), RECs collaborated with state Medicaid offices, state offices for HIT, and local medical associations to transform health care in their communities.

“I think we have the benefit of those 15 to 20 years of experience in social capital building and collaboration, which enables us to hit the ground running for some of these newer initiatives.”

The Tri-state REC, for example, is part of a far-reaching and longstanding regional-level collaborative effort to transform health care in the greater Cincinnati area. HealthBridge, the organization that administers the Tri-State REC, is a subsidiary of Health Improvement Collaborative of Greater Cincinnati (Health Collaborative). The Health Collaborative is a nonprofit association of almost 200 health care provider organizations (hospitals, health systems, and nursing homes) that work together to improve the health care delivery system in the region in cutting-edge, innovative ways. The Health Collaborative has a history of pursuing funding to achieve its goals. For example, the organization is an awardee of the Robert Wood Johnson Foundation’s Aligning Forces for Quality program. When the Health Collaborative created Health Bridge, it was focused primarily on HIEs. From there, Health Bridge’s activities expanded into Beacon and the REC program. Health Bridge’s multi stakeholder board, as part of

the collaborative, steers the region forward in health care transformation by mobilizing widespread support and participation in innovative delivery system improvements. All the related, parallel efforts in this community probably helped to increase general awareness of HIT trends among providers and perhaps also to maximize the effective use of resources. Communities lacking this infrastructure are at a sizable disadvantage for building the social capital necessary to achieve REC goals quickly.

RECs partnered with established community organizations already trusted by eligible providers to aid access to and credibility with providers

The existence of many local organizations engaged in health care transformation was a source of competition in addition to synergy. Informants from many RECs noted that a substantial driver of their decisions regarding partnership and operational models was the extent and nature of local competition. In many instances, RECs sought partners and subcontractors for TA services, because they recognized that other organizations were better positioned to recruit and work with providers.

Eight of the nine case study subjects subcontracted TA activities to local organizations. The decision to subcontract TA typically rested on the desire to avoid competing with organizations already well positioned to do this work and to capitalize on the trusted advisor status of these organizations within provider communities. Several of the areas within which RECs were operating contained organizations that had longstanding relationships with providers and/or specific experience and expertise to support providers' HIT goals effectively. In some cases, such as CRISP (MD REC), these local organizations were designated and certified by the state government to perform these activities. In such situations, RECs opted to collaborate with these organizations rather than compete with them.

"We decided that we didn't want to compete in the marketplace. We'd rather just utilize the marketplace."

A variety of organizations served as subcontractors including private, for-profit consulting firms; hospitals and health systems; provider associations; accountable care organizations (ACOs); billing management companies; colleges and universities; and EHR resellers.⁹ Two of the RECs contracted with neighboring RECs. LHIT, for example, worked with the Arkansas REC, and the Tri-state REC worked with the REC for Kentucky.

Often, subcontractors are selected because they work with a particular type of eligible provider. One of COREC's subcontractors, for example, works exclusively with the Federally Qualified Health Centers (FQHCs) in the state, and another works specifically with rural and critical access hospitals. CalHIPSO is unique in its subcontracting model in that it contracts with 10 Local Extension Centers across the state, which then contract with local implementation partners to supply TA for providers.

⁹ EHR resellers are organizations that are authorized to sell a specific EHR product but are not a part of the vendor organization.

RECs were flexible with technical assistance staffing because of the evolving nature of HIT professionals' labor supply

The expanding role of information technology in health care has increased the demand for professionals who are knowledgeable in both health care and information technology. The goal of the Workforce Development Program, another HITECH program, is to build a HIT workforce to meet this demand. At the beginning of the REC program, however, few individuals possessed both skill sets. Thus, RECs were forced to assemble TA teams of individuals with a wide variety of skill sets. A key theme that emerged early in data collection was the diversity of opinions regarding the type of person best suited to supply TA for health care providers. In many instances, RECs prioritized one skill set over the other.

Some respondents, as this quote illustrates, believed that persons with information technology (IT) skills were more relevant: “You have to have or identify a person who is an IT person. They're good at making sure things are virus safe and security safe and all that stuff.” Key informants believed that IT experts were valuable because they were well equipped to help providers make the most educated decisions regarding the selection of EHR technology, head off challenges to HIT implementation, and optimize vendor software.

Other respondents, such as the project manager quoted below, insisted that persons with clinical backgrounds, such as nurses and practice managers, were vital:

“A lot of times when you get technology-heavy individuals into practices, they don't understand how to communicate with a physician or with the 75-year-old receptionist who doesn't want to do to this. And all of our staff has had some kind of practice background, physician practice background, and I think that's what made them successful.”

This perspective asserts that individuals with clinical backgrounds understand the unique challenges associated with installing HIT in a clinical practice and can more easily build rapport and credibility with providers. In particular, respondents noted that a nuanced understanding of clinical workflows and physician culture was the valuable skill that consultants with clinical backgrounds possessed.

These various perspectives aligned with how RECs staffed their organizations. Some preferred IT experts—particularly RECs that were also state HIEs—whereas others favored staff with clinical experience. A few RECs, such as Wide River TEC, intentionally created TA teams with both skills sets. Wide River TEC's staffing model includes a clinical leader and an IT support technician who work together to provide TA for providers. The clinical lead handles administrative responsibilities such as planning, scheduling meetings, and running sessions and serves as the primary provider contact. The support technician handles all of the TA issues associated with the hardware infrastructure and the EHR product, such as identifying needs, setting goals, and managing the selection and implementation process. Interviewees from Wide River TEC believed this staffing model worked well because “You have to show up with both resources at the same time. Otherwise you're kind of wasting their time if you can't answer the question that they have at the time that they have it.”

REC business models depended on the perception of providers' willingness or ability to pay

The REC program required RECs to contribute an in-kind match of 10 percent of the funding necessary to support their targeted number of providers in achieving MU. Many RECs thought that eligible providers would simply be unwilling or unable to pay for REC services and thus provided services free of charge. To meet the requirement of the in-kind match, these RECs instructed providers to document the number of hours spent pursuing MU and to tally the dollar figure associated with those hours based on the hourly rate of staff (including physicians) engaged in the process. In these cases, the labor time expended on pursuing MU was sufficient to meet the in-kind match requirement.

"But we felt it was important that they pay a small fee. If you get something for free, sometimes you don't appreciate it or value it as much."

Other RECs chose to fulfill the matching requirement by charging providers a fee. These RECs thought that it was important to charge providers even in the face of reluctance to pay

because it demonstrated the providers' commitment to the work necessary to reach their IT goals. LHIT, for example, charged providers based on the number of providers in the clinic and whether the provider already had an EHR. A one-provider practice enrolled with LHIT would pay \$500 if he or she already had an EHR or \$1,250 if he or she was still practicing with paper records. A 10-provider practice enrolled with LHIT would pay \$1,800 if it already had an EHR and \$3,500 if not. The variation in price is associated with a certain number of hours the LHIT REC expects to spend with providers based on their position on the HIT continuum; the payments are distributed over the course of the providers' enrollment in the REC.

Finally, several RECs used different strategies over the course of their grant periods. Three of the RECs included in the in-depth case studies charged providers a fee early on in their programs, but they moved to the in-kind labor hours match after facing difficulty getting providers to enroll because of these fees. It appears, then, that the decision of whether and how much to charge providers for REC services was difficult.

RECs operating in rural areas structured their programs to maximize the impact of limited human and financial capital

Providing TA in rural areas presented unique challenges that RECs had to overcome. These challenges stemmed from three issues. First, rural providers were often located in places where the community infrastructure was insufficient to support EHR products. For example, the availability of consistent and high-quality Internet service was limited in rural areas. Second, key informants across several RECs

noted that many rural providers were especially skeptical of government programs and mistrustful of community outsiders as well as nonphysicians. Third, rural providers were hard to reach. The consensus among RECs was that face-to-face TA was the optimal method for providing services; however, given

"The first thing that I did was look at the state and familiarize myself with just exactly how rural we are and the central and the west side. And I determined that the people who needed to focus on those areas lived in those areas. Also, to support them for the IT side of things, we needed people who were familiar with those challenges, such as the idea of remote connectivity and the idea of telehealth. We tried to pair up our strengths and I think we did a really good job of doing that."

resource constraints, visiting providers in rural areas as often as needed was difficult.

To address the challenges of infrastructure deficiencies in rural areas, field staff became knowledgeable about EHR products that could be used effectively given these deficiencies. TA staff also helped rural providers identify potential vendors that were local rather than national and that understood the needs of rural health care. To address the challenge of skepticism and mistrust, RECs that served rural areas hired field staff who were community insiders. These staff had

“A lot of our vendors bring in people from other states or even other countries, and so [providers] find it very hard to trust those people. They don’t know if you’re going to be here tomorrow versus I’m here. I’m in the state. I’m in the city. You can find me at any time.”

previously worked in clinics in the area or had personal relationships and connections with the community.

Finally, to address travel challenges, RECs hired field staff who lived in the communities within which they were providing TA to rural providers. The field staff worked from home and could travel to rural providers more frequently using fewer resources. Together these strategies helped RECs overcome the challenges of providing TA in rural areas.

How do RECs identify and recruit eligible providers?

Meeting their provider enrollment goals was the first milestone that RECs had to achieve. Although most providers were willing to receive assistance from RECs, many were very reluctant to adopt EHR technology and to participate in the EHR incentive programs, according to almost all REC key informants. According to key informants, providers were reluctant because of the high costs associated with the technology, the perception that entering data into medical records is a clerical task, skepticism about whether the EHR would really improve care or generate increased revenue, and a general aversion to IT. Key informants also reported that some providers also expressed doubt about whether they would actually receive the incentive payments offered by the EHR incentive programs if they participated, as well as a general opposition to government involvement in how health care providers deliver care. In some areas, a specific history of dysfunction between providers and the state Medicaid office fueled providers’ skepticism about the EHR incentive programs. Interviews with providers validated that these are common provider concerns.

Thus, there were two parts to RECs’ efforts to recruit providers. First, REC staff had to communicate the value proposition for EHRs and MU to providers who, in many instances, were skeptical of the value of EHRs, based on preexisting perceptions of the appropriate role of physicians, the appropriate role of government, and the inherent value of IT. Second, RECs had to gain the trust of providers so that they would use REC services to assist with these activities. The strategies associated with these tasks were quite similar among the RECs represented in the in depth case studies and among other RECs, based on the information obtained from the focus groups with REC staff at the regional meetings. This section describes these strategies.

RECs used multiple strategies to communicate the value proposition of adopting EHRs and pursuing MU

When communicating the value proposition of EHRs and MU, REC staff attempted to frame the decision in terms that would resonate most strongly with providers. RECs used multiple “pitches” to this end. For example, one common pitch was to emphasize the improved quality of care they could provide by going electronic.

Another common pitch was to reference the monies providers could receive through the MU program and urge them to avoid the penalties that would accrue from Medicare. A less common approach was to tell providers that they could increase revenue or save money (e.g., on paper and printers, or by turning medical record rooms into lab space.).

“[My staff] showed up to a practice and one of the providers said, ‘What possible benefit could you bring to me as being a non-clinician telling me how to implement a system that’s supposedly supposed to help my clinical practice. Very calmly, [my staff] said, ‘Can you tell me how many diabetic patients you have in these records?’ Neither provider could. They said, ‘Can you tell me how many of them haven’t been here for a foot exam in the past year?’ They couldn’t. So not only can we help you improve care on diabetic patients by adopting this technology... [the REC can] improve your revenue, as well. This is what we’re here to help you do. And they earned their respect by that.”

Some RECs benefited from local financial support for providers to adopt and achieve MU of EHRs. In Maryland, for example, a state-level financial incentive program is funded by payers. In North Dakota, providers can receive low-interest loans with long repayment periods (10 years) to purchase EHRs. These local incentive programs and loan funds enable providers to install EHR systems with little out-of-pocket cash investment or use of commercial loans. RECs in these states leveraged these financial support programs when discussing the benefits of EHR adoption with providers.

RECs partnered with trusted advisors to gain access to and credibility with providers

In tandem with strategic messaging about the benefits of EHRs and MU, RECs used advisors trusted within the provider community as messengers. This strategy signaled to providers that the REC was the organization best suited to provide assistance with adopting and meaningfully using an EHR. Sometimes, the REC or its subcontractors were the trusted advisors. In these cases, RECs simply reached out to existing clientele to inform them of the new service offerings. RECs using this approach had worked with these providers in the past on other initiatives, such as QIO work.

“I think the medical society was very helpful because they already had a trusted group of physicians. So if they said something their membership followed it and agreed and trusted it. So that was a good partnership.”

In addition to reaching out to existing clientele, key informants also frequently reported using a physician champion—a clinician prominent in the provider community, also known as “MUVers” by ONC, who validates the legitimacy and utility of the REC program—as a recruitment strategy. MN/ND REACH,

for example, employed a physician to help with outreach and recruitment. This physician traveled throughout the states on what the REC called “circle tours,” reaching out to and recruiting providers and practice managers to enroll in the REC program. The physician’s efforts effectively increased the REC’s enrollment.

RECs also contacted potentially eligible providers with whom they had no preexisting relationship. In these cases, RECs often solicited contact lists from various sources and then

contacted providers via mail, fax, or telephone. Distributing information about the RECs to providers attending conferences and events of local medical associations was another common method key informants reported using to reach providers with whom their REC had no preexisting relationship.

All key informants agreed that using organizations or individuals who were insiders was the best strategy for reaching providers and marketing REC services. This finding is consistent with theory on the diffusion of innovation.¹⁰ However, key informants seemed to think that this approach was especially important in the REC context, given that some providers were resistant to government regulation of the way they practice care. Most RECs tapped into trusted advisors and reached out to previously unassociated providers to meet their enrollment goals. However, the extent to which organizations were able to build on preexisting relationships depended on their organizational history, position in the community, and partnerships with organizations that were trusted advisors within the physician community. RECs that had worked with providers in the past, such as QIOs, did not need to reach out as broadly as did new organizations. Further, many of the subcontracting organizations worked exclusively with their existing client base. Hospitals and health system subcontractors, for example, often worked with the providers in their affiliated and owned ambulatory clinics. Similarly, ACO and hospital association subcontractors used REC funding to provide additional services for their constituencies. Organizations that exclusively targeted their preexisting client base were often able to reach their target number of providers without broadening the scope of their outreach.

What technical assistance services do RECs provide?

Diffusing EHR technology across the U.S. health care system involves more than simply assisting individual providers with the adoption, implementation, and meaningful use of EHRs.

All providers—even the niche sectors—need a core group of services to assist them in the process (see exhibit 4). Typically these services are provided face to face and supplemented by phone calls and email. TA staff acknowledged that providers' length of enrollment in the REC

“What we’re doing is we’re trying to provide coordinated care... and having the education, the support [from the REC] makes it a little bit easier to take a deep breath, hold your nose and jump off the cliff, and say, ‘OK, this is going to be good.’”

program varied widely. However, a commonly estimated range was between 9 and 18 months. During this stage of the process RECs contributed to and learned the most from the resources on the HITRC portal. After striving to develop practical ways to help providers achieve their EHR goals, RECs would often share their successful strategies with other RECs. Conversely, REC staff looking for advice or strategies could access the portal's resources for assistance or participate in the Communities of Practice to learn collaboratively with other RECs. In this section, we describe the core TA services offered by RECs and the scope and method for providing TA.

¹⁰ Rogers, E. M. (1962). *Diffusion of innovations*. Free Press of Glencoe: New York.

Exhibit 4: Technical Assistance Services Provided by RECs

Type of service	Description and example of services
Practice needs assessment	Conducting baseline evaluations to assess clients' readiness, capability, or baseline status with regard to selecting, implementing, or using EHRs. Examples include what hardware they have, if they currently are using an EHR, and how they currently deliver care.
EHR product selection	Helping clients choose a vendor for their EHRs. Examples include setting up EHR demos, helping clients find the money to purchase their EHR systems, and providing advice on what to look for in an EHR.
Hardware recommendation, selection, purchasing, or installation	Providing advice or services related to clients' hardware needs (e.g., computers, laptops, and Internet service)
Privacy and security-related matters	Advising clients on privacy and security definitions and requirements (e.g., Health Insurance Portability and Accountability Act (HIPAA) guidelines, protected health information) and how to develop policies and procedures that accommodate these issues
Liaison with vendor	Acting as a liaison between clients and their vendors; examples include helping clients resolve conflicts and negotiate contracts with their vendors
Workflow redesign	Helping clients reorganize their care delivery, office procedures, or general workflow to facilitate EHR use; examples include how to allocate tasks to specific types of staff to maximize efficiency, and suggesting that staff go to the patient rather than the patient moving through various rooms within the practice
Meaningful use preparation and attestation	Helping clients move through all steps of the MU process; this includes registering with CMS, "pulling reports" to assess clients' progress toward MU and readiness to attest, working on specific MU objectives with the client, the actual attestation process (e.g., entering the necessary information into the CMS Web site), and following up on problems (e.g., delays in payment, errors, failure to meet guidelines)
Software installation, implementation, or training	Helping to install EHR software or training practice staff to use it

RECs offer a comprehensive menu of services to support providers' achievement of MU

Needs assessment

Once a client is enrolled in the REC program, the TA staff usually begins by visiting the practice to conduct a needs assessment. The goal of the needs assessment is to learn more about the practice's patients and staffing, understand the practice's current workflows and business practices, and determine the existing hardware infrastructure of the office. This information helps TA staff tailor the services to specific practice needs. Once an initial assessment is complete, the TA staff develops a work plan outlining how they will help clients achieve MU. In some cases, the work plan is a formal document that TA staff share with the client. In other cases, it is an internal planning document that is entered into project management tools such as Basecamp. Other TA staff reported that their work plans were more informal and consisted of personal notes used to guide their work with a client. As providers progressed through the process, REC staff

entered providers' milestones into Customer Relations Manager (CRM), a platform ONC provided to RECs for project management and reporting.

Workflow redesign

Integrating EHRs into a primary care practice involves more than simply installing the software. Using the software often necessitates a reorganization of care delivery. REC TA staff help practices make these necessary workflow changes. One example of workflow guidance reported by key informants was suggesting that patients stay in one room during an appointment, with staff and providers coming to that room to deliver care rather than moving patients from room to room. This strategy enables information to be input into a computer system as it is being collected rather than having to transfer the information to an EHR from paper notes after the encounter. Another common workflow recommendation reported by key informants was to advise providers to delegate data entry to other practice staff. For example, medical assistants can enter height, weight, and demographic information.

Vendor selection

Hundreds of certified EHR products are on the market. A core task for REC TA staff was to help providers navigate these options and choose the EHR product that best matched the needs of their practice. Most of the RECs indicated that they approached assistance with vendor selection from a position of strict neutrality. Neutrality, most field staff believed, provided greater flexibility for providers to choose a product that best fit their needs and facilitated trust between the provider and the TA staff by reducing the appearance of REC bias. Thus, field staff helped clients understand how to choose a vendor and provided information on as many vendors as the client wanted to consider rather than steering clients toward specific vendors. Many of the RECs developed decision tools that clients could use when acquiring information about potential vendor products. A few TA staff scheduled vendor product demonstrations in clients' offices and were present to help providers ask the right questions. TA staff continued to help providers navigate their relationships with vendors after the EHR software was installed. RECs assisted providers after EHR installation by contacting vendors when a product was not working properly.

After a provider chooses an EHR product and makes any necessary changes to the practice workflow, the vendor typically conducts training and installs the EHR software. Some RECs, however, have TA staff who are certified in particular EHR products. In such cases, TA staff often installed and trained clients on the software selected. Many TA staff members were present the entire day when a practice began to use its EHR software. They wanted to be a source of emotional support in case of frustration and to help troubleshoot workflow issues as they arose.

"We end up kind of being in that middle neutral role of mediating between yes, your vendor is telling you this and they're doing their job right ...or, no, your vendor's telling you incorrectly. That's not what meaningful use says and we need to kind of step in and help mitigate that."

Meaningful use registration, data collection, and attestation

Once providers had been using their EHRs for a designated period of time, TA staff began to assess the data being entered into the EHR by generating the reports needed to attest MU and determining providers' progress toward the necessary objectives. The results of these assessments enabled TA staff to identify the challenges that practices face in meeting the

thresholds designated by the incentive program and to devise a plan to address these challenges. Once a provider and TA staff believed that the provider was meeting MU objectives consistently, the provider began their year 1 attestation period (90 days). At the end of that period, data were extracted from the EHR and entered into the CMS or state Medicaid attestation database and providers attested.

RECs' technical assistance is often "high-touch"

In most cases TA was performed at frequent intervals (e.g., biweekly) for as long as it took a provider to achieve MU. In a few instances, the REC functioned more as a help desk, providing information and troubleshooting as needed. Variation in the intensity of TA seemed to stem from differences in the resources available at the REC, such as number of staff and travel funds.

RECs used peer learning and coaching to deliver technical assistance

Most key informants reported that the majority of their TA was provided face to face in providers' practices. Between appointments, email and phone supplemented face-to-face interactions. In addition to one-on-one TA, many RECs also created peer learning groups for providers where providers with the same EHR product or client base (FQHCs, for example) could work together to share effective strategies for success. Peer learning opportunities occur in several different formats. A TA staff person within CALHIPSO, for example, noted that if she was working with a provider that was having difficulty with an EHR system, she arranged for that provider to shadow a provider who had more experience with EHRs. Key informants also reported the use of peer groups or learning collaboratives organized around a common EHR product. In these "user groups," providers worked together to identify practical solutions to common problems and to facilitate efficient and successful MU achievement.

RECs tailored service offerings based on provider needs and organizational expertise

Although most RECs represented in the case study and focus group data offered all of the services listed above, there was some variation in whether RECs offered these services as a package or piecemeal. In some cases, this variation stemmed from different REC program models. For example, some RECs designed their programs so that TA staff provided the full menu of services and walked providers step by step through the process from paper all the way through MU attestation. Other RECs itemized services. This was often the case in RECs working with subcontractors that would offer services only in their specific areas of expertise. Clients of these RECs could still receive the full range of services, but they might have to seek it from multiple organizations. For example, one REC subcontractor might help a provider select and implement an EHR product, while another REC subcontractor might help a provider with the workflow changes necessary to successfully meet MU criteria.

Variation in service offerings also stemmed from variation in providers' needs. In such instances, TA staff tailored their assistance to include only services that providers needed or requested. For example, some providers already had an EHR installed when they enrolled in the REC program. In these situations, assistance with vendor selection was unnecessary. Instead, TA staff could focus on helping the provider successfully attest to MU.

What challenges do RECs face in helping providers achieve the three milestones? What strategies do RECs use to overcome these challenges?

As of April 2013, 52 percent of providers enrolled in the REC program had achieved MU.¹¹ All key informants noted that challenges to helping providers achieve MU are many. However, REC staff and collaborators' commitment to overcoming these challenges is strong. The following section presents the most commonly reported challenges and strategies for overcoming obstacles.

"One thing that we'd like to see is like a uniform way of exporting data so that you're not held captive by a vendor."

Provider resistance to EHR technology persisted throughout their enrollment in the REC program

Providers' reluctance to adopt EHRs and pursue the MU incentive program required field staff to make the case for EHRs repeatedly. The day-to-day challenges associated with transitioning to EHRs and navigating the complexity of the MU programs frustrated providers, making it difficult to keep providers engaged and progressing toward MU.

Mitigation strategies: Many TA staff viewed their role in relation to providers as cheerleader as well as technical consultant. As cheerleaders, TA staff provided emotional support to providers during times of frustration, celebrated all successes (no matter how small), and worked to build personal as well as professional relationships with their clients. In particular, spotlighting providers who had received their incentive payments was a common strategy TA staff used to keep providers motivated throughout the process.

Another common strategy that TA staff used was to identify an office champion who could ensure that providers were following through on tasks between visits from the TA consultant. This person was usually a "strong office manager" who was assertive, organized, and committed to achieving milestones in a timely manner. In some instances, a "tech-savvy physician" played the role of office champion. Almost all RECs indicated that they had their "best results where there is someone that will be the champion."

Finally, emphasizing the quality gains that would likely accrue from the MU of EHRs was also a common strategy that REC staff used to keep clients engaged.

RECs faced a "Catch-22" when determining whether and to what extent to collaborate with EHR vendors

The EHR product market was a key challenge for RECs. By increasing demand, the MU program effectively expanded the EHR product market. A large number of new vendors emerged hoping to capitalize on the increased demand for EHR technology. Bringing certified products to market as quickly

"The biggest challenge I think is that there's no clear market signal about the value of any one certified EHR. There's kind of this idea that if I get a certified system, I should be able to do meaningful use relatively easily. And that's not necessarily the case."

¹¹ <http://dashboard.healthit.gov/rec/>

as possible was vital to remain competitive, given the time-limited nature of the MU program. Key informants believed, however, that vendors struggled to develop problem-free products given this shortened production cycle.

Respondents indicated that the usability of many vendor products was poor and that this made it more difficult for providers to achieve MU. For example, interviewees noted that some certified vendor products seemed unable to perform even the most basic functions necessary to achieve MU, such as producing reports. Key informants reported other technological issues including the inability to interface with immunization registries in the state and general technological glitches that stalled providers' ability to use the software effectively. Providers hoping to use their EHRs to exchange patient data with other collaborating practices or hospitals were especially frustrated by the lack of interoperability among EHRs.

A second common challenge that key informants reported regarding vendors was unsavory business practices. For example, key informants reported that some vendors had inaccurate advertising, inadequate training, additional fees for "add-on"

"When you get the electronic medical record systems, it's like as if you got a car in various boxes. So here's your car, but that part's over there. That's the brakes. And if you want the seats, you know, the seats are in that other box. And if you want seatbelts, well they'll be coming in a couple of weeks. In the sense that just endless end user customization is required."

services that were essential to product functionality, and long wait times for customer support. Vendor business practices interfered with RECs' ability to support providers in achieving MU because it lowered providers' morale, stalled progress (particularly with regard to long wait times for customer support), and in some extreme cases it meant that providers had to replace their vendor products and start over. As more and more providers progress past Milestone 2 (EHR implementation) and proceed toward MU, the challenges associated with EHR technology and vendor business practices may become more pronounced.

Mitigation strategies: Under-developed EHR technology forced RECs to determine whether and to what extent they should develop relationships with vendors and advocate for providers. RECs varied widely in their approach to this pressing problem, and no clear best practice emerged.

Some RECs attempted to preempt problems by developing contractual relationships with vendors. By pooling the demand of the large number of recruited providers, the REC hoped to encourage vendors to provide better services and pricing to REC enrollees than to purchasers in the open market.

"And so over time, we built better relationships with the EMR vendors which I think allows us to kind of advocate more on behalf of our providers when it comes to making sure that they're getting the services they need from their providers."

For example, some RECs worked with vendors to create contract language that specified the amount of training on the EHR product, included time for vendor staff to customize the product to meet the needs of the client, reduced pricing on upgrades within a designated time frame after purchase, specified a period of time when providers could obtain their data for transfer to another product without penalty, and stated a clear description of all fees.

Brokering relationships with vendors, however, was difficult. According to key informants, many vendors were unresponsive to REC attempts to build these relationships, and several RECs that pursued a group purchasing option for their enrollees noted that it was difficult to convince

the large vendors to apply. One REC's efforts stalled after choosing its preferred providers because it could not get past contract negotiations.

Providers seemed indifferent to these group purchasing relationships with vendors. Key informants attributed this lack of enthusiasm to the fact that providers often make decisions based on word-of-mouth referral and that some vendors were providing better pricing in the open market than through the group purchasing options. Vendors noted that, depending on the REC, the value proposition for partnering with the REC was not strong given the many concessions being requested.

In addition to attempting to build formal relationships with vendors, RECs also acted as liaisons between providers and their vendors. Sometimes, high-level REC staff responded to a specific issue that was affecting a large number of providers by approaching the relevant vendor and asking the vendor to rectify the problem. This approach typically occurred when the problem was severe and affected a large number of REC clients. Other RECs worked with vendors on an ongoing basis to resolve issues that providers were experiencing. MN/ND REACH, for example, meets with six of the top vendors in the area at least quarterly to report problems that their clients are experiencing and to stay abreast of their progress in terms of the vendors' product development.

Individual TA consultants also intervened on behalf of their clients; however, their efforts were often unsuccessful. Vendors often refused to speak with anyone other than the client regarding customer support and were no more likely to respond to the REC than they were to providers. Thus, consultants often directed their efforts to keeping providers engaged in the process despite their frustration with vendors. Consultants also made sure that providers were following the proper protocols when dealing with vendors (e.g., directing their support requests to the right person, documenting issues and support requests, and following up at regular intervals).

Another strategy that RECs used was to remain staunchly independent of vendors. A REC's decision not to intervene on behalf of providers often stemmed from the desire to avoid being associated with vendors, which they believed clients might perceive negatively.

"I don't want to be in the middle of the fight sessions because there's doctors and complaints—there's many of those to go around. And the vendors are always on the receiving end of that. If it's the REC program organizing these things, vendors are probably not going to be happy with us. And the doctors are not going to be happy with the vendors. And they're going to associate us with the vendors and we don't want that. That's a tricky situation to be in. So we stayed out of that."

Communicating accurate and timely information about MU to providers was difficult given the volume, complexity, and sometimes conflicting information available

A wealth of information exists related to the EHR Incentive Programs. Its policies and procedures—particularly with respect to Medicaid—are quite complex and still evolving. Condensing, translating, and communicating this information to providers in an accurate,

systematic, and timely way became a major challenge for the RECs. Providers' ability to achieve MU depended on their accurate understanding and implementation of the guidelines. Thus, misinterpretation, confusion, and conflicting information stalled providers' progress toward and achievement of MU.

Mitigation strategies: RECs used two approaches to tackle the challenges associated with the abundance, complexity, and conflicting and evolutionary nature of MU information. The first approach was to designate an MU expert who was responsible for gathering, translating, and disseminating this information. The second approach was to build close working relationships with state Medicaid offices. These relationships allowed a REC to have a direct line of communication for issues related to Medicaid MU, which were often more frequent and complex than those for Medicare MU. RECs cherished their roles as the "point of truth" about all things MU. As one key informant noted, "They see us as that neutral party who's current on the regulations, current on what information is out there." Interviews with providers confirmed that RECs served as a source of credible and up-to-date information regarding MU and that providers appreciated this feature of RECs.

"The final rule wasn't even out when we were going out to try and educate providers and do our recruitment. We didn't want to be out there and misspeaking so, from the beginning, we had CMS out with us. We started out with the regional medical director and the regional director and we had someone from Medicaid there at every session... We wanted the experts to talk about this is what AIU is. This is how you calculate it. We wanted that."

The REC program funding mechanism posed challenges for RECs that were startups

After the initial administrative startup payment, RECs are paid by ONC only as each provider achieves a milestone (EHR adoption, implementation, or MU). Although this provides a strong incentive for success, this structure proved challenging for RECs that were new organizations and had little working capital available. Finding the resources to fund outreach and recruitment was difficult for these organizations and often delayed recruitment efforts early in their grant periods. Some RECs used the same payment approach with their subcontractors, which devolved the problem to subcontractors that also had limited access to working capital.

Mitigation strategies: Well-established organizations that had been in business before the REC program often had the resources to begin outreach and recruitment activities during the startup period and thus were less affected by the REC program's funding structure. A few of the RECs represented in the case study data that were not in the position to support these activities with internal funds pursued and received business startup loans through a bank. These funds were then repaid once the REC received funding for milestone achievement. Many of the RECs who found the funding model problematic simply persisted until enrollment picked up and they began to receive their grant revenue.

Some Medicaid EHR incentive program timelines, delays, and administrative challenges became problematic for RECs targeting providers that intended to attest to this program

Several RECs reported that the status and administration of the state Medicaid incentive programs challenged their ability to meet their milestones. For example, in several states the Medicaid program did not open the provider attestation function until well beyond the point when the RECs were prepared to support Medicaid-eligible providers. At the time of the case study site visits (approximately 2 years after the REC funds were awarded), three of the nine state Medicaid MU programs were not yet operational. Two more REC state Medicaid programs had recently opened for attestation. In one state, providers were experiencing significant delays in receiving their incentive payments from state Medicaid. The inability to pursue Medicaid attestation made it difficult to recruit and enroll Medicaid eligible providers in the REC. Depending on the proportion of providers in the REC’s catchment areas that intended to attest to Medicaid rather than Medicare, this posed a substantial challenge to reaching milestone goals. Delays in paying incentives to providers also proved problematic because providers viewed them as further justification of their skepticism toward government programs.

“And then with Medicaid not having started until just this summer, those were big hurdles. All of our sites were basically saying, ‘We’d love to do it. But if we don’t have this incentive, then we have no really other motive to do it besides just wanting to do it.’”

Mitigation strategy: To overcome the challenges of Medicaid delays, RECs used a variety of strategies. One strategy was to convince Medicaid eligible providers to begin the process in anticipation of program availability. Another strategy was to partner closely with Medicaid to stay abreast of developments so they could communicate new information to providers in real time. This allowed these RECs to begin building relationships with Medicaid eligible providers while the programs were being established.

Sustaining RECs will be difficult if providers are unable or unwilling to pay for REC services

Key informants anticipated numerous challenges to sustaining their REC programs. Most of the providers interviewed appreciated the services that they received, insisted that they could not have reached MU on their own, and were bewildered at the thought of tackling future stages of MU without REC services. Yet the consensus among the key informants and providers interviewed was that most providers would not be willing or able to pay for these services. Recognizing this sentiment, RECs acknowledged that creating a fee-for-service sustainability model would be challenging. RECs that charged providers a fee to participate in the REC program believed that they had an advantage in pursuing this sustainability plan, because it would be more difficult to convince providers to pay for REC services when funding ended after having previously received the services free of charge. However, even the RECs that charged providers acknowledged that a key component of providers’ willingness to pay for REC services was the expectation that they would be paid for their efforts by one of the EHR incentive programs. Absent these incentive payments, key informants believed, the value proposition of the REC dwindled. If

“My biggest fear is that funding will dry up before additional funding comes out and before stage 2 is released. And that these providers who really have said that they are committed to this—and we believe them—who can’t afford full-time fee-for-service work, they’ll just turn their back on the [meaningful use] program.”

the key informants' assessments are indicative of the sentiment of the general population of providers, RECs may face challenges to generating the revenue necessary to sustain their programmatic offerings.

Mitigation strategies: Of those hoping to sustain their REC status, fee-for-service models targeting specialty providers and subsequent stages of MU were the most commonly reported strategies. Rather than solicit fees from providers that enroll in the REC, these plans involve marketing REC services to those better positioned to afford them. Examples include specialists, ACOs, and payers already invested in quality improvement. In the latter case, packaging REC-like services with quality improvement was seen as a potentially viable strategy to communicate the value proposition of RECs. Another potential sustainability option, according to key informants, is to create co-ops where similar providers could pool resources to receive the services and support they will need in the future to sustain their HIT development. A few RECs were considering seeking other sources of grant funding. At the time of data collection, RECs had begun to think about sustainability but most had not formed clear sustainability plans.

QIOs face unique challenges to sustainability

Sustainability is a special challenge for RECs that are QIOs. In addition to helping health care organizations improve quality of care, QIOs review medical care for inappropriate utilization and investigate complaints from Medicare beneficiaries about providers. Currently, CMS QIO conflict-of-interest rules require QIOs that accept payments from providers in those markets where they provide QIO services to implement mitigation strategies to remove any perceived conflict of interest. These rules complicate efforts to generate and collect user fees as a source of revenue to support sustainability.

Mitigation strategies: RECs that are also QIOs reported that they would be unlikely to sustain their REC activities because of rules that prevent them from accepting payment from providers.

Subcontracting out technical assistance has advantages and disadvantages

Although RECs that used the subcontracting models often excelled in recruiting providers quickly, several challenges were associated with this operational model. The advantages of subcontracting are:

1. Reduced competition
2. The ability to tap into existing networks
3. The ability to provide niche services for certain types of clients such as members of ACOs, CAHs, and FQHCs

The subcontracting model, however, has several disadvantages as well, including:

1. The difficulty of managing multiple organizations
2. Variable performance among subcontractors
3. Diminished opportunities for REC branding

Managing the activities of multiple organizations proved to be challenging. Keeping track of subcontractors' progress toward goals and ensuring consistent, high-quality services across all

subcontractors were difficult. Without a clear understanding of when subcontractors were faltering, RECs did not know when to provide additional support. In addition, several key informants reported variable performance among subcontractors. This variation, along with difficulty projecting milestone achievement, threatened the success of the REC as a whole, given that the REC is ultimately accountable for its overall performance and milestone achievement. Finally, RECs that had subcontractors conduct most of the outreach, recruitment, and TA with providers had little name recognition among providers. As one key informant noted, “The REC isn’t the name that everyone remembers, it’s the subcontractor that they remember, and so there’s no loyalty there.”

Building sustainability, then, will be a challenge for RECs with subcontracting models because once funding ends and the subcontracts expire, these RECs will have few ties to the provider community. It seems, then, that subcontracting program models can both facilitate and impede program success and sustainability.

Mitigation strategies: Key informants from several RECs reported a few strategies that facilitated the management of large and diverse subcontractor relationships. Strategies included centralized communication processes, clear expectations combined with close monitoring of progress, and tools and resources to support technical activities. These strategies helped to create consistency and high quality across subcontractors. In relation to sustainability, several RECs viewed increasing visibility among providers as a necessary first step in building sustainability. These RECs had begun to develop strategies to achieve this goal.

“We’re all one team. If we’re the leadership, they report up to us. We have our staff meetings together. We’re all focused on the same goals so it’s never felt like managing a subrecipient. We’re just managing a team to reach our shared goals ... any of our independent consultants or our partners all follow the same program and methodology. They come from different organizations, but it’s a pretty cohesive one team moving the ball forward.”

The acquisition of small independent practices by large health systems reduced the pool of eligible providers in many locales

The REC program was created to help providers with the fewest resources participate in the MU program. These providers mainly comprise primary care physicians in small practices (fewer than 10 physicians) not owned or affiliated with hospitals or health systems. The trend in many areas of the country is for hospitals and health systems to acquire ambulatory practices. Several RECs spoke of being located in areas where a high proportion of primary care physicians worked in either large practices or practices that were affiliated or owned by hospitals or health systems. Estimates ranged from 50–90 percent. Contrast this with Maryland’s estimate that only 10 percent of practices were owned, and it becomes clear that local provider mix is a key factor in REC implementation and operational strategy. In several of the states within which the RECs in this sample were located, health system domination created challenges in identifying providers eligible for the REC program. Minnesota, Pennsylvania, and New Hampshire key informants noted that a lot of the providers in their area did not strictly qualify as priority providers. In Minnesota, many of the clinics are large because health systems dominate and they have to be larger to compete. In Pennsylvania and New Hampshire, a substantial share of providers practice in offices owned by hospitals or health systems; the estimate for such practices in Pennsylvania

was more than 50 percent and in New Hampshire 70–75 percent. This created challenges to setting reasonable recruitment goals. High proportions of local providers who did not fit cleanly into the priority primary care physician targeted by the REC program meant that some RECs had to enroll a very large percentage of the eligible providers in their area to meet their recruitment goals. This made Milestone 1 achievement more difficult for these organizations compared to RECs with goals that reflected a smaller portion of local eligible providers.

Mitigation strategies: In a couple of cases, RECs worked with the ONC to make their goals more realistic. PA REACH, for example, initially set a target of 8,700 providers (5,700 in the east and 3,000 in the west). After the funding was awarded, they determined that 57 percent of the potentially eligible providers in Pennsylvania were owned by the University of Pittsburg, West Penn Alleghany, and Geisinger health systems. This trend was expected to continue. This drastically reduced the number of providers they could work with, so they were able to adjust their goals.

Conclusion

The REC program was intended to help the providers with the fewest resources—health care providers that work in solo or small, independent practices, critical access hospitals, rural health centers, community health centers, and other health care organizations that serve underserved populations—achieve MU by giving local extension centers the flexibility to develop programs best suited to help local providers. Given that most providers were unwilling or unable to pay for the services and the difficulties associated with navigating the process successfully, it is likely that most of these providers would not have been able to achieve MU alone. However, contextual conditions both constrain and enable how RECs can structure and organize their programs, how they respond to challenges, and their ability to assist providers in their efforts to achieve MU. These contextual conditions, and the strategic decisions that RECs make to contend with them, may end up being the most influential determinants of the REC program’s ability to meet its goal of 100,000 providers achieving MU by 2014. Based on the findings presented here, three potential best practices are emerging: (1) brokering and sustaining strong partnerships with key stakeholders (such as quality improvement organizations, health information exchanges, and other organizations involved in supporting providers in quality improvement, state agencies, medical societies); (2) using TA staff who have a mix of information technology skills, an understanding of clinical practice, and general business management skills; and (3) working with a champion to initiate and sustain providers’ engagement in the process.

Strategic partnerships facilitated multiple key activities that RECs engaged in. For example, strategic partnerships helped RECs to identify and recruit eligible providers quickly, centralize the process of translating and communicating an enormous amount of complex information related to HIT and quality initiatives to the medical community, and foster goodwill between the HIT industry and end users. Multiple overlapping efforts to transform health care likely increase overall awareness and openness to care transformation broadly speaking, and EHR adoption, implementation, and MU more specifically, given its position on the care transformation continuum.

An appropriate mix of expertise allowed RECs to communicate a value proposition for the adoption, implementation, and MU of EHRs that providers accepted and to provide the wide range of TA providers needed to be successful. Interviews with REC clients affirmed the perspective that individuals with clinical backgrounds have more credibility with physicians. At the same time, the biggest source of frustration during the journey to MU was implementing and learning how to use EHRs properly. Those without extensive IT training often lacked this skill. It seems, then, that the most effective staffing approach is to employ individuals who have both skill sets, although RECs reported that the supply of workers with both skills is quite limited.

RECs used different types of champions to facilitate their success with helping providers achieve MU. Often physician champions on staff or affiliated with RECs helped communicate the benefits of EHR technology and lend credibility to the REC. TA staff also noted that having a “strong office manager” or a “tech-savvy physician” within their clients’ practices helped keep providers engaged and organized throughout the process. They identified this person as soon as possible after enrolling a provider into the REC program and worked closely with this person throughout. Thus, champions working for RECs or in provider practices were key to the RECs’ work.

Unfortunately, the most difficult challenge that RECs face in meeting their goals—poor EHR product usability and the unsavory business practices of some vendors—has proven to be especially recalcitrant to mitigation strategies. Many key informants and providers expressed frustration with under-developed EHR technology and undesirable business practices such as lack of transparency in pricing and inadequate training. Although several strategies were used to overcome these challenges, including leveraging the RECs’ large client base to build relationships with vendors, TA consultants’ advocacy for specific providers, and remaining uninvolved with vendors to avoid negative association, key informants noted that these challenges persisted. As more providers clear the hurdle of EHR implementation and progress toward MU, this challenge will likely be exacerbated. Thus, an important factor in the overall efficacy of the REC program will likely be the speed at which EHR product usability improves. It may be that the EHR product market will reduce to a small group of high-quality products and vendors because of market competition. Alternatively, EHR usability may simply improve as vendors have more time to invest in product development. Either way, the availability of high-quality EHR products is an important consideration in assessing the success of the REC program.

Future work of the evaluation will explore these conclusions in more detail. A second round of case studies will be conducted in the winter of 2013. Also in early 2014, the evaluation team is scheduled to field a survey with health care providers participating in the REC program and non-REC providers to assess the impact of the REC program.

APPENDIX 1. Mandatory Stage 1 Meaningful Use Objectives and Clinical Quality Measures for the Medicare and Medicaid EHR Incentive Programs

Objective	Brief description and threshold for successful demonstration of objective
	Mandatory Stage 1 Meaningful Use Objectives
1	Computerized provider order entry (CPOE): More than 30% of all unique patients with at least one medication in their medication list seen by the eligible provider (EP) must have at least one medication order entered using CPOE.
2	Drug–drug and drug–allergy checks: EP has enabled this functionality for the entire EHR reporting period.
3	Maintain an up-to-date problem list of current and active diagnoses: More than 80% of all unique patients seen by the EP have at least one entry or an indication that no problems are known for the patient recorded as structured data.
4	E-Prescribing (eRx): More than 40% of all permissible prescriptions written by the EP are transmitted electronically using certified EHR technology.
5	Maintain active medication list: More than 80% of all unique patients seen by the EP have at least one entry (or an indication that the patient is not currently prescribed any medication) recorded as structured data.
6	Maintain active medication allergy list: More than 80% of all unique patients seen by the EP have at least one entry (or an indication that the patient has no known medication allergies) recorded as structured data.
7	Record demographics: More than 50% of all unique patients seen by the EP have demographics recorded as structured data. (Demographics = preferred language, gender, race, ethnicity, date of birth.)
8	Record and chart changes in vital signs: For more than 50% of all unique patients age 2 and over seen by the EP, height, weight, and blood pressure are recorded as structured data.
9	Record smoking status for patients 13 years or older: More than 50% of all unique patients 13 years old or older seen by the EP have smoking status recorded as structured data.
10	Report ambulatory clinical quality measures to CMS/states: Successfully report to CMS ambulatory clinical quality measures selected by CMS in the manner specified by CMS.
11	Implement clinical decision support: Certified EHRs have the ability to program clinical decision support that can trigger alerts or clinical information for providers when they encounter patients with certain diagnoses or treatments. EPs should implement one of these rules that makes sense for their medical practice.
12	Provide patients with an electronic copy of their health information upon request: More than 50% of all patients who request an electronic copy of their health information are provided it within 3 business days.
13	Provide clinical summaries for patients for each office visit: Clinical summaries are provided to patients for more than 50% of all office visits within 3 business days.

Objective	Brief description and threshold for successful demonstration of objective
14	Capability to exchange key clinical information: Performed at least one test of certified EHR technology's capacity to electronically exchange key clinical information.
15	Protect electronic health information: Conduct or review a security risk analysis in accordance with the requirements under 45 CFR 164.308(a)(1) and implement security updates as necessary and correct identified security deficiencies as part of its risk management process.
Mandatory Stage 1 Meaningful Use Clinical Quality Measures*	
1	Hypertension: Blood pressure measurement
2	Preventive care and screening measure: Tobacco use assessment, tobacco cessation intervention
3	Adult weight screening and followup

Source: http://www.cms.gov/Regulations-and-Guidance/Legislation/EHRIncentivePrograms/Downloads/EHR_Medicaid_Guide_Remediated_2012.pdf; Note: If no patients are eligible for these clinical quality measures, the provider must choose one or more of the following: (1) weight assessment and counseling for children and adolescents; (2) preventive care and screening: influenza immunization for patients 50 years and older; (3) childhood immunization status.

APPENDIX 2. Data and methodology used to assess select RECs for data collection based on performance

We used a systematic quantitative strategy to select six RECs as case study subjects. First, we used a linear regression model to estimate the expected MU rates for each REC area, controlling for potentially confounding characteristics of the region. Controlling for confounders minimizes the effect of external environmental factors that may be associated with MU in an area. Then we ranked RECs based on the difference between their observed and expected rates, and the top three highest performing and top three lowest performing were selected for data collection. Below we explain this process in detail.

- I. **Data Sources.** We used MU rates from a February 2012 extract of the CRM. We also included state-level data from Kaiser Family Foundation state Health Facts and the Health Resources and Services Administration Area Resource File.
- II. **Model.** We explored several variables in regression models.¹² We selected the final model based on two criteria: p -value $< .1$ for variables and highest adjusted R^2 to assess model fit. The variables in the final model are:
 - a. Outcome of interest: The expected MU rate among REC participants in a REC catchment area (percentage of providers participating in the REC program that have achieved MU).¹³
 - b. Independent variables
 - i. State population
 - ii. Percentage of state that is nonmetropolitan
 - iii. Percentage of population below the poverty level
 - iv. Percentage of providers under the age of 35 years
- III. **Analysis.**
 - a. Regressed MU rate on confounding variables.
 - b. Calculated the linear prediction values from the fitted model. These are the expected rates for the REC catchment after controlling for confounding variables.
 - c. Compared the observed MU rates to expected rates in the REC catchment area.
 - d. Ranked RECs based on the magnitude of the difference between the observed and expected MU rate.
- IV. **Results.**
 - a. The three highest performers were selected from among the RECs whose rates exceeded expected rates for the catchment area.
 - b. The three lowest performers were selected from among the RECs whose rates were lower than the expected rates for the catchment area.
 - c. Three additional RECs were selected based on ONC recommendations.

¹² Other variables that we considered including in models: the state is a Beacon state; percentage of state with Medicare; percentage of state with Medicaid; percentage of state in the 0–18 age range; unemployment rate; HMO penetration rate; percentage of state with Internet; health spending per capita; percentage of electronic health record use.

¹³ Some RECs that cross state lines or that have a large number of participants from multiple states are included in the model more than once.

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