Regional Extension Coordinators:
Use of Practice Support and Electronic Health Records to Improve Quality and Efficiency

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The North Carolina Regional Extension Center for Health Information Technology provides onsite consultation to primary care practices to help them implement electronic health records then use these systems to optimize care through measurement, rapid cycle quality improvement, and application of medical home functionalities. Services are available from all 9 regional North Carolina Area Health Education Centers.

The North Carolina Area Health Education Centers (AHEC) program has established a comprehensive health information technology regional extension center (REC) to support primary care providers and other health practitioners in adopting electronic health records and using this technology effectively. Since the North Carolina AHEC's inception, one of its core missions has been to produce educational programs and other tools that help North Carolina health professionals enhance quality of care and improve health care outcomes. Residency training, continuing education programs, Web-based training, and digital library resources for physicians and other health professionals have all contributed, and continue to contribute, to this mission. Two additional programs have been developed in recent years that have broadened North Carolina AHEC services beyond the training environment and have strengthened its capacity to support health professionals in the delivery of high-quality care to their patients.

Six years ago, the North Carolina AHEC, in partnership with the North Carolina governor's office, Community Care of North Carolina (CCNC), the North Carolina Medical Society, the North Carolina Academy of Family Physicians, The Carolinas Center for Medical Excellence, the North Carolina Division of Public Health, major insurers in the state, and other state agencies, developed a national model to improve care in primary care practices by providing hands-on, ground-level, quality improvement consulting and support in primary care practices throughout the state. North Carolina was chosen to pilot the Robert Wood Johnson–funded Improving Performance in Practice (IPIP) project, which was led by the American Board of Medical Specialties and cosponsored by the certifying American Board of Internal Medicine, American Board of Family Medicine, and American Board of Pediatrics. The intervention supported by the IPIP project involved training quality improvement consultants employed by the North Carolina AHEC program at each of its 9 regional centers to work within individual practices to help them measure accepted indicators of chronic care and identify possible changes in practice work patterns, to optimize this care, and then to rapidly test and fine-tune these changes, to keep improving care.

The IPIP project was initially implemented in 18 practices, and in the ensuing 4 years, it was expanded to more than 150 practices throughout the state. The project demonstrated that real-time electronic tools that provide reminders and track important elements of care, whether disease registries or electronic health records, were needed to improve important outcome measures. However, we also learned that access to data was not enough—even more essential was the presence of a quality improvement consultant to help the practice use the data, build a team approach, maximize work flow, and apply rapid-cycle quality improvement techniques to the organization and the execution of care. As a result, part of the processes of work flow assessment, practice redesign, and implementation of quality improvement strategies was to help practices use electronic health records more effectively, to improve chronic care and the outcomes of the patients they serve. This experience of on-the-ground, practice-by-practice education, combined with work on electronic health records, medical-home concepts, and rapid-cycle quality improvement, prepared the North Carolina AHEC to incorporate this model as the structural architecture for the North Carolina approach to regional extension centers for health information technology, as described in the HITECH portion of the American Recovery and Reinvestment Act. Fortunately, Governor Perdue's office agreed and asked the North Carolina AHEC to lead a partnership with the Carolinas Center for Medical Excellence,

the North Carolina Medical Society Foundation, the North Carolina Institute for Public Health, and others to submit the North Carolina REC application on the basis of the concepts that electronic health records are powerful tools and that the North Carolina REC should be built on a foundation that helps health professionals not only choose these tools but implement them in a manner that achieves the best possible value and health outcomes for North Carolinians.

The North Carolina REC was funded in the first round of HITECH REC awards through the Office of the National Coordinator for Health Information Technology, in February 2010. Our program was designed to leverage the infrastructure of the 9 regional AHECs across the state; the community relationships derived from the North Carolina AHEC health professional training and continuing education programs, now in their fourth decade; and the practice-based model already used by the IPIP project in all the regional AHECs.

Practices are eligible to sign up for REC services at no cost through an online application that can be accessed at our Web site (available at: http://www.ahecqualitysource.com). Currently, priority is given to primary care practices in rural areas, those in urban underserved areas, and those with 10 or fewer health professionals. Figure 1 shows the continuum of services available to each practice participating in the North Carolina REC program. Each regional AHEC has an REC team with 1 or more of the following personnel: (1) a practice support coordinator, who functions as the project manager responsible for the entire electronic health record selection/implementation process within a practice, beginning with a readiness assessment and ending with achievement of meaningful use, as defined by the Centers for Medicare and Medicaid Services; (2) a technical assistance specialist, who serves as a product expert and has the technical knowledge to integrate important electronic health record functions, such as laboratory receipt, e-prescribing, and quality reporting; and (3) the quality improvement consultant, who, as always, works with the physicians and practice staff to use their newly minted electronic tools to measure care parameters, institute quality improvement teams, and help the practice function as a recognized, patient-centered medical home, with the goals of achieving optimal care and health outcomes. Services especially applicable to the adoption of health information technology include help with vendor selection, planning and implementing the electronic health record, analyzing and redesigning practice work flow, instituting best privacy and security practices, resolving postimplementation barriers to achieving meaningful use, and, when a health information exchange is available, establishing functional interoperability and participation in the health information exchange. Note that priority practices that already use an electronic health record are also eligible to join the North Carolina REC program, so that they can upgrade to a certified system then participate in all phases of REC services beyond vendor selection.

We are early in the implementation process and are many months away from being able to demonstrate improved outcomes and cost-efficiencies directly derived from the North Carolina REC program. However, we have learned from our earlier work in the first 150 practices that real-time electronic tools, complemented by the work flow analysis, practice redesign, and quality improvement concepts described above, lead to substantial clinical improvements. For example, when considering the 113,000 diabetes patients cared for by these 150 practices, the number of patients who achieved important outcomes, such as a hemoglobin A_{1c} level of less than 7%, a low-density lipoprotein cholesterol

FIGURE 1.

Continuum of Onsite Educational Services Provided by Practice-Based Consultants From the North Carolina Area Health Education Centers
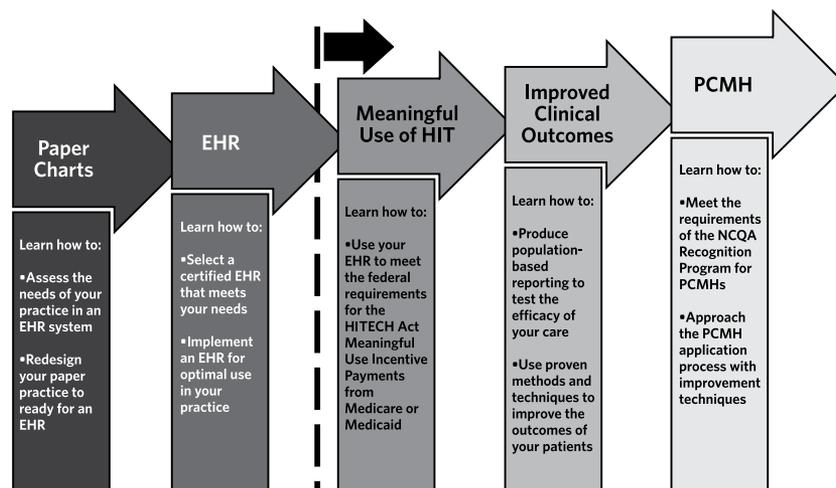
Note. EHR, electronic health record; HIT, health information technology; NCQA, National Committee for Quality Assurance; PCMH, patient-centered medical home.

level of less than 130 mg/dL, and a blood pressure of less than 140/90 mm Hg, has doubled, while the most-advanced practices have reached levels of care superior to national benchmarks. By extrapolating the "average" results by use of data from the United Kingdom Prospective Diabetes Study, we estimate that 1,000-2,000 lives will be saved in this cohort during the next 10 years [1] and that, additionally, a similar number of microvascular complications, especially the development of nephropathy, will be prevented [1, 2].

As of May 1, 2011, a total of 2,800 health professionals from more than 750 practices, covering more than 3 million patients, have signed up for these services. In the next year, we anticipate these numbers will grow to 4,000 primary care professionals from more than 900 practices, covering more than 4 million patients. North Carolina prevalence statistics suggest that close to 1 million hypertensive patients [3], 400,000 diabetic patients, 320,000 asthmatic patients, and 800,000 smokers [4] will be treated in these practices. With the implementation of electronic health records and the use of simple features such as clinical decision support and point-of-care reminders, the effect on quality of care should be significant [5, 6]. Recent data suggest that incorporation of the quality improvement and medical-home aspects of North Carolina AHEC's services into the culture of practice systems will add to the benefits of electronic health records and will translate into large improvements in preventive and chronic care, while substantially lowering costs [7-9].

As use of health information technology spreads and North Carolina develops its health information exchange capabilities, the combination of clinical and administrative data will more fully define the value of North Carolina REC services to primary care professionals and the patients they serve. However, at this time, we already know that, to achieve the vision of new models of care, the diffusion of electronic health records that can meet the parameters of "meaningful use" is one of the necessary legs on which the "new models" stool must stand. The other 2 legs are the use of real-time data attached to rapid-cycle quality improvement and the incorporation of the principles of a truly systematic medical home. CCNC is working diligently to further enhance its successful medical-home and enhanced care management approach. The North Carolina AHEC program and its partners are delighted to complement these important efforts by developing new and leveraging old practice relationships, combined with on-the-ground educational tools to add an ingredient or two, to help transform traditional practices into these patient-centered health systems that are designed to produce the care coordination, benchmark outcomes, and cost-efficiency that current care systems have yet to accomplish. NCMJ

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