The Role of Practice Facilitators in Meeting the HIT Needs of Rural Practices

Ann Lefebvre, MSW, CPHQ; Mary McCaskill; Kristin Reiter, PhD;
Jason Mose, MS, MBA, CHFP, PhD; Erin P. Fraher, PhD; Warren P. Newton, MD, MPH

I. Introduction and Background

The US healthcare system is undergoing substantial transformation in an attempt to improve the quality of the care while addressing the significant and rising costs of health care. Many state and federal policy changes affecting ambulatory care settings are currently underway. In many cases, the success of these policies depends on the availability of a workforce with skills that are not traditionally found in ambulatory care settings; for example, skills in process improvement and health information technology. Traditional training and education models are often not equipped to meet the rapid pace of change necessary to transform the workforce needed to practice in ambulatory care. At the same time, it is not feasible to expect physician practices to take on the additional financial burden of hiring new staff with needed skill sets. Thus, there is a distinct need for a flexible ambulatory care workforce that possesses core clinical and practice management competencies, but is also nimble in its ability to adapt to new innovations. This requires programs that can facilitate continuous learning of new skill sets needed to keep pace with emerging federal and state policies that are shaping healthcare and the health care workforce of the future.

One example of a transformational policy change is the focus on Electronic Health Records (EHRs). In the last decade, health care policy makers have made a concerted effort to increase the adoption and implementation of EHRs. Most notable was the

CONCLUSIONS AND IMPLICATIONS FOR POLICY

1) New federal policies like MACRA are changing payment mechanisms to focus more on quality of care and information technology, but this could have a negative impact on the viability of rural-based practices if they are not supported in the mechanisms needed to receive payments.

2) The growing emphasis placed on primary and preventive care to reduce costs will require a consistent rise in the sophistication of delivery mechanisms within the primary care practice setting. A flexible workforce that includes practice facilitators is needed to ensure that federal healthcare policy changes are implemented at the ground level of healthcare service delivery.

3) The growing and emerging field of practice facilitation is strengthened by the diversity of the prior professional experience that facilitators bring to their roles, but strong training and support mechanisms must be in place to retrain our existing workforce. Practice facilitation training programs must be strong, but agile, to keep pace with the growing breadth of skills required for primary care practices to succeed in the changing health care environment. The cost of maintaining such programs may be well worth it if they are able to help the traditional healthcare workforce achieve the goals of higher quality of care at a lower, more sustainable, cost that appear out of reach today.

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passage of The Health Information Technology for Economic and Clinical Health (HITECH) Act, enacted as part of the American Recovery and Reinvestment Act of 2009[1-3]. Under the HITECH Act, the Centers for Medicare and Medicaid Services (CMS) created Electronic Health Records (EHR) Incentive Programs to spur adoption, implementation and the "meaningful use" of EHRs[4]. Under the program, eligible providers could earn up to up to $63,750 under Medicaid and $44,000 under Medicare over a six year period[5]. The Meaningful Use Incentive program is still in progress. Between 2011 and June 2016, CMS paid $23.5 billion under the Medicare program and more than $10.9 billion under the Medicaid program to approximately 504,000 health care providers[5].

In part because of this incentive program, adoption rates of EHRs by physician practices have increased tremendously. In 2013, 78% of office-based physicians reported using any type of EHR system, up from 18% in 2001[1]. However, according to ONC, "Physicians in physician or group owned practices reported the lowest EHR adoption rates"[6] with only 71% using Certified EHR Technology (CEHRT) as compared to practices owned by HMOs, insurance or healthcare corporations that achieved 87% CEHRT use. Single provider practices had the lowest EHR adoption rates at 55% using CEHRT while 86% of physicians in practices with 11+ physicians had available CEHRT[6]. Despite the successful efforts in promoting EHR adoption, physician practices continue to lag behind hospitals and federally qualified health centers in their use of EHRs[6] with the smaller, physician owned practices trailing even more significantly in EHR adoption.

One reason for the gap in uptake of EHRs between institutional providers and smaller physician practices is a lack of personnel with the necessary skills to meet the needs of a more data-driven health care system[7]. Many health care organizations are creating new positions to facilitate adoption, implementation and use of EHR data to improve quality and meet performance metrics under value-based payment systems. However, studies suggest that many small practices can't afford to hire new workers. These practices must retrain and redeploy their existing staff to meet the increasing demands of health information technology, but accessing training is often difficult. Smaller and rural practices cannot afford expensive consultants, and community colleges/ baccalaureate-level training programs are often not located in these communities[6]. In a survey of rural practices, most reported no plans to hire new employees to fill EHR skill gaps and more than 60% reported needing additional training for existing staff [8].

Given these challenges, an important resource for small and/or rural primary care practices has been the Office of the National Coordinator's Regional Extension Center (REC) program. The HITECH Act mandated the U.S Secretary of Health and Human Services to "provide assistance for the creation and support of regional centers to provide technical assistance and disseminate best practices and other information learned from the center to support and accelerate efforts to adopt, implement, and effectively utilize health information technology." [2] The NC AHEC, acting as the Regional Extension Center for North Carolina assisted 3,534 providers with achieving at least stage one of

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the Meaningful Use Incentive Payment Program resulting in $76,492,422 in payments going to providers such as small, rural practices, practices with fewer than 10 providers, rural health clinics, community health centers, and providers associated with rural hospitals. There was no requirement that RECs provide workforce development to practices to augment the consultative services provided by the REC staff. However, North Carolina opted to build their REC as part of the state's Area Health Education Centers (AHEC) program, a comprehensive, regionally based health workforce development program. As part of the REC program, the NC AHEC began to develop and deploy a practice facilitator workforce to educate providers and staff on the methods, tools and techniques needed to meet the requirements of the HITECH EHR Incentive Programs (i.e., Meaningful Use).

North Carolina AHEC's
Practice Facilitation Program
Since 2007, NC AHEC has provided selected practices with a practice facilitator. NC AHEC practice facilitators focus on methods for improving care delivery systems, tracking data, improving patient outcomes and transforming into patient centered medical homes (PCMHs). Each practice facilitator provides direct, onsite support to a caseload of ambulatory care practices in their region. This support includes: assessing the practice's current HIT capabilities, needs and financial capacity; assisting in the selection of the most appropriate EHR system; guiding system implementation, security and risk assessments, and/or system optimization; and helping the practice meet the Meaningful Use Stage 1 and Stage 2 criteria.

Since practice facilitation is an emerging occupation that supports many aspects of ambulatory care[12], the NC AHEC program chose to assemble regional teams of staff with varying backgrounds and a wide range of expertise. Minimum requirements for the practice facilitator role included at least a baccalaureate degree in a healthcare related field, as well as some previous work experience in healthcare. This wide latitude of knowledge and experience remains a strength of the program. However, it posed an initial challenge to develop, and deploy statewide across 9 regions, a relatively uniform practice facilitator workforce with expertise in the skills and competencies needed to assist practices. To address this challenge, the NC AHEC instituted several programs, grounded in adult learning theory, to enable practice facilitators to gain new skills and knowledge through didactic, peer-to-peer, and experiential learning opportunities[6]. These elements include:

1. A standardized onboarding and orientation process
2. Training site visits to shadow a variety of practice facilitators from different backgrounds
3. Twice-monthly training webinars tailored to topics practice facilitators identify as needed in an annual self-assessment survey
4. Emergent issues training webinars (example)
5. In-person training conferences
6. Email listserv for questions practice facilitators have while in the practices
7. Shared Wiki space to allow web-based access to program resources
8. Dedicated librarian to help support and catalogue all of the resources and provide evidence when needed.

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In NC, the use of practice facilitators has been associated with significant improvements in quality and health outcomes and the practice facilitator training program at the NC AHEC has been cited as an exemplar by the Agency for Healthcare Research and Quality (AHRQ) [6]. While a previous evaluation found that REC programs in general were positively associated with adoption and implementation of EHRs[9], the skills needed by practice facilitators and their effectiveness in meeting practices' EHR workforce needs has not been investigated. This case study of North Carolina's practice facilitation program sought to better understand the level of skills and knowledge practice facilitators possess and their effectiveness in helping small, rural practices meet the demands of using health information technology. Using data collected by the NC AHEC program, this study examined three questions:

1. What background or skills did the NC AHEC practice facilitators possess upon hiring?
2. How did practice facilitators rate their knowledge on key skills required to help practices achieve Stage 1 or Stage 2 of the Meaningful Use program?
3. Was practice facilitation associated with better provider performance on selected quality, safety and efficiency, care coordination and patient engagement measures under modified Stage 2 of Meaningful Use?

II. Design and Methods

This case-study of North Carolina's practice facilitation program used multiple data sources and methods to evaluate the skills, knowledge and effectiveness of the facilitators in helping small, rural practices to meet the requirements under Meaningful Use.

Data Sources and Sample

Data on practice facilitator background and skills (research question 1) came from a detailed review of the professional resumes of 38 practice facilitators (100% of those employed by the program in July 2016). Data on practice facilitators' ratings of their knowledge on key skills related to Stage 1 and Stage 2 of the Meaningful Use Program (research question 2) came from the January 2016 annual skills assessment survey conducted by NC AHEC of the 39 practice facilitators employed for this work at that time (a copy of this survey is available upon request). Annually, the NC AHEC program has practice facilitators complete a self-assessment of their skills and knowledge. This skills assessment, completed using Qualtrics, assesses performance on 49 core competencies in six key areas (program mission, methods, clinical improvement, practice system redesign and innovation, PCMH recognition, EHR incentive program requirements). For each competency, the practice facilitator rates their skill level using one of four levels of proficiency: (1) request more training on the competency, (2) a basic understanding of the competency to perform the competency/or can refer the practice to additional resources, (3)a well-developed understanding of the competency and can speak about it with confidence to the practice, and (4) a thorough understanding of the competency and can teach a practice the target skill or knowledge and facilitate use by practice staff. Forty-four practice facilitators (100% of the facilitators employed at the time) participated. Since this is a requirement of the practice facilitation program at NC AHEC, question-level response rates were 100%. This study examined responses to

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questions related to the EHR incentive program requirements.

Data from modified Stage 2 of the Meaningful Use Incentive Program[i] (research question 3) were obtained from the 2015 Centers for Medicare and Medicaid Services (CMS) Medicare and Medicaid Electronic Health Record (EHR) Incentive Program data file. Provider characteristics such as graduation date, gender, number of group practice members, hospital affiliation and specialty area were obtained from the 2014 CMS Physician Compare file. County level demographic and market data such as location in a metropolitan statistical area, population density, education and unemployment were obtained from the 2014 and 2015 Bureau of Health Workforce's Area Health Resource File. Finally, data on provider engagement with the NC AHEC were obtained from North Carolina's AHEC program. The CMS Physician Compare data file contained 2,074,960 National Provider Identifiers (NPIs). After dropping NPIs that were not located in North Carolina, 51,387 NPIs remained. A total of 22,017 duplicate NPIs were dropped (representing providers working in more than one office), leaving 29,370 unique NPIs in North Carolina. These data were merged with data from the CMS Medicare and Medicaid EHR Incentive Program data file using NPI, resulting in 7,770 NC providers that successfully attested to meaningful use modified stage 2 criteria. Next, area demographic and market characteristics from the Area Health Resource File were

added using the U.S. Department of Housing and Urban Development USPS ZIP Code crosswalk file leaving 6,577 NC providers for analysis. Finally, providers working with the NC AHEC were identified. The final analytic sample included 6,577 unique NC providers: 1,425 who worked with NC AHEC practice facilitators and 5,152 who did not.

Analytic Methods
Descriptive analysis was used to assess practice facilitators' background skills and experience and their ratings of knowledge on key skills. Resume reviews were used to determine the percentage of facilitators indicating experience in each of four categories (not mutually exclusive): (1) health information technology (defined as health information management or informatics) (2) administrative (defined as healthcare administration, or practice management), or; (3) clinical (defined as nursing or midwifery); and (4) other related fields (defined as public health, social work or Library science). Data on 14 questions related directly to meaningful use were selected from the annual skills assessment in the areas of program requirements, patient engagement, privacy and security and data reporting were summarized to show the percentage of facilitators reporting: (1) a request for further training (2) a basic understanding (3) a well-developed understanding or (4) a thorough understanding of the skill, technology or program component.

Bivariate statistics (t-tests or chi-square) were used to assess differences in the characteristics of providers that received facilitation versus those that did not. Multivariate ordinary least squares regression analysis using inverse probability weights to adjust for selection of

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[i] **MU Stage 2**- *Stage 2 expanded upon the Stage 1 criteria with a focus on ensuring that the meaningful use of EHRs supported the aims and priorities of the National Quality Strategy. Stage 2 criteria encouraged the use of health information technology for continuous quality improvement at the point of care and the exchange of information in the most structured format possible.*

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providers into practice facilitation was used to assess the association between practice facilitation and better provider performance measures on selected quality, safety and efficiency, care coordination and patient engagement measures under modified Stage 2 Meaningful Use.

Measures
Dependent variables: The dependent variables came from three domains under the meaningful use program[10]. First, from the *quality, safety and efficiency domain*, we used performance on the use of electronic prescribing, and computerized provider order entry (CPOE) for medication, laboratory and radiology. On electronic prescribing, the provider is required to generate and transmit permissible prescriptions electronically, while on CPOE, any health care professional in the practice is required to use the CPOE for medication, laboratory, and radiology to enter orders directly into the system. The measures are percentages (successes/eligible attempts) ranging from 0 to 100.

Second, under the meaningful use domain of *patient engagement*, we utilized three measures – two measuring electronic patient access to their health records and one measuring patient education. The first measure of electronic health record access (eAccess) is defined as the number of patients "who have access to view online, download and transmit their health information within four business days after the information is available to the eligible provider (EP) divided by the number of unique patients seen by the EP during the EHR reporting period[11]. The second measure of electronic health record access (eAccess – View, Download, Transmit) is defined as the number of patients or their representative who view, download, or transmit their health information to a third party divided by the number of unique patients seen by the eligible provider (EP) during the EHR reporting period[11].

Under the third domain of *patient engagement* is performance on patient education using a certified electronic health record to identify patient specific information and resources and provide the same to the patient. It is calculated as "the number of number of patients who were provided patient-specific education resources identified by the CEHRT" divided by "the number of unique patients with office visits seen by the EP during the EHR reporting period"[11]. Each measure ranges from 0 to 100 percent. Lastly on the care coordination domain we used two measures: medication reconciliation and performance on health information exchange. Medication reconciliation is calculated as "the number of transitions of care where medication reconciliation was performed" divided by "the number of transitions of care during the EHR reporting period for which the EP was the receiving party of the transition" [11]. Similarly, the health information exchange measure is calculated as "the number of transitions of care and referrals where a summary of care record was created using CEHRT and exchanged electronically" divided by "the number of transitions of care and referrals during the EHR reporting period for which the EP was the transferring or referring provider"[11].

Independent variable: The independent variable of interest in this analysis was a dichotomous variable set equal to one if the provider received practice facilitation from the regional extension center, in this case NC AHEC.

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Control variables: To control for possible variation in performance related to factors other than facilitation, the analysis controlled for provider characteristics and contextual factors such as population and geographic setting. Provider characteristics included gender, dummy variables for meaningful use payment year, years in practice (logged), number of providers in the group practice (practice size) (logged), hospital affiliation (1/0), and a series of dummy variables measuring affiliation with one of the top five primary specialties (cardiology, family practice, gastroenterology, internal medicine, orthopedic surgery).

We also included several demographic and market variables including location in a Metropolitan Statistical Area, Micropolitan Statistical Area or non-Core-Based Statistical Area as defined by the Office of Management and Budget, percent of the county population under 65 and the percent of the county population uninsured, number of persons in the county per 10,000 with a four year college education, and whether the county was designated as a primary care or mental health care professional shortage area (2015 designation). In addition, the study controlled for the county-level unemployment rate (2014), percent of population that was Black/African American, percent of the population that was Hispanic/Latino and population density measured as population per 100 square miles.

Model specification
The analysis employed the following ordinary least squares regression model for all the dependent variables. Standard errors were adjusted for clustering of providers within practices.

$$y = \delta_0 + \delta_1 x_1 + \delta_2 x_2 + \delta_3 x_3 + \delta_4 x_4 + u \ (1)$$

In model 1, y is the meaningful use performance measure. x_1 is a dichotomous variable indicating whether a provider received practice facilitation from NC AHEC, x_2 is a vector of Meaningful Use payment year variables, x_3 is a vector of provider characteristics and x_4 is a vector of county-level contextual factors.

Further, to control for possible selection bias of providers into practice facilitation, the analysis used logistic regression to calculate the probability of being assigned to the facilitation group. The predicted probability was then used as inverse weights in the regression in Model 1 above to account for differences between the two groups. The logit model took the following general form:

$$Prob\ (y = 1|x) = \frac{e^{x\beta}}{1 + e^{x\beta}}$$

III. Findings

Summary data on the study sample are provided in **Table 1** (next page). All providers in the study sample successfully attested to modified Stage 2 of the Meaningful Use program; however, there was variation in the extent to which providers met each requirement (i.e., the percentage of patients or encounters that received or included the meaningful use activity). Providers successfully met the requirements in 33 to 98% of patient encounters across different meaningful use measures. The highest success rates were in measures of Computerized Provider Order Entry for Medication, Laboratory and Radiology, and in Medication Reconciliation. In contrast, the lowest success rates were in measures of electronic access to patient health records for viewing, downloading and transmitting, and health information exchange. For three of the

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Table 1: Meaningful Use Performance by and Characteristics of Providers Receiving and Not Receiving Practice Facilitation

	Provider Received Practice Facilitation (n=1,425)		Provider Did Not Receive Practice Facilitation (n=5,152)		p-value
Dependent Variables	# Obs	Mean (S.D.)	# Obs	Mean (S.D.)	
(Electronic) e-Prescribing	1,374	88.9 (10.7)	3,680	88.8 (10.9)	0.7823
CPOE[a] Medication	1,346	95.5 (9.7)	3,151	94.8 (10.6)	0.0188
CPOE[a] Laboratory	998	92.1 (13.2)	2,596	91.6 (14.3)	0.3769
CPOE[a] Radiology	1,392	97.4 (6.0)	4,163	97.6 (5.7)	0.3907
e-Access to Electronic Health Record	1,421	87.7 (14.5)	5,073	88.9 (14.2)	0.0041
e-Access View, Download, Transmit	1,419	34.3 (23.7)	5,042	32.5 (25.2)	0.0154
Patient Education	1,423	71.0 (29.4)	5,048	74.9 (29.6)	0.0000
Medication Reconciliation	1,380	93.1 (10.3)	4,726	92.1 (10.6)	0.0017
Health Information Exchange	419	40.7 (27.8)	482	45.4 (30.5)	0.0161
Continuous Control Variables					
Years in practice	1,398	26.1 (9.7)	5,066	24.6 (10.0)	0.0000
Number of group practice members	1,416	272.4 (251.9)	5,093	474.2 (569.7)	0.0000
Persons per 10,000 with 4 yr. education (age 25+)	1,425	8.1 (9.5)	5,152	9.0 (9.4)	0.0019
Per capita income (in 000s)	1,425	38.7 (5.8)	5,152	40.8 (6.3)	0.0000
Population per 100 Sq. miles	1,425	6.2 (5.9)	5,152	7.5 (5.9)	0.0000
% Black/African American	1,425	21.8 (11.9)	5,152	22.3 (11.3)	0.1661
% Hispanic Latino	1,425	8.6 (3.4)	5,152	9.4 (3.2)	0.0000
Unemployment rate (16+ yrs. old 2014)	1,425	6.0 (1.0)	5,152	5.8 (1.0)	0.0000
% uninsured (<65 yrs. old)	1,425	18.5 (2.3)	5,152	17.9 (1.9)	0.0000
Categorical control variables	# Obs	Percent	# Obs	Percent	p-value
Female	1,425	35.7 (47.9)	5,152	24.0 (42.7)	0.0000
Payment year [b] 3	1,425	18.1 (38.5)	5,152	32.4 (46.8)	0.0000
Payment year [b] 4	1,425	56.3 (49.6)	5,152	54.3 (49.8)	0.1763
Payment year [b] 5	1,425	25.6 (43.7)	5,152	13.3 (34.0)	0.0000
Hospital affiliation (Yes)	1,425	96.4 (18.8)	5,152	88.1 (32.4)	0.0000
Non Core-Based Statistical Area (units?)	1,425	4.6 (20.9)	5,152	2.0 (14.1)	0.0000
Metropolitan (units?)	1,425	84.8 (35.9)	5,152	89.3 (30.9)	0.0000
Micropolitan(units?)	1,425	10.7 (30.9)	5,152	8.7 (28.1)	0.0268
Percent urban population	1,425	67.6 (29.0)	5,152	75.3 (24.7)	0.0000
Whole county primary care health professional shortage area (units?)	1,425	1.5 (12.3)	5,152	0.9 (9.2)	0.0495
Part of the county primary care health professional shortage area(units?)	1,425	87.9 (32.7)	5,152	89.9 (30.1)	0.0318
Whole county mental health professional shortage area(units?)	1,425	10.7 (30.9)	5,152	6.3 (24.3)	0.0000
Part of the county mental health professional shortage area (units?)	1,425	70.8 (45.5)	5,152	78.4 (41.2)	0.0000

[a] CPOE = Computerized Provider Order Entry

[b] The payment year is the year for which the payment is made, by CMS, for successfully attesting to meeting the MU requirements. It correlates with the program year, the year in which the eligible provider submits data to CMS for a particular reporting period.

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measures, there was no statistically significant difference in performance between providers receiving and not receiving facilitation. However, providers receiving facilitation performed slightly better than those not receiving facilitation on use of CPOE for Medication, getting patients to view, download and transmit health information, and use of medication reconciliation; in contrast, they performed slightly worse on providing patients with electronic access to their health record, providing patient education and using health information exchange. Patient Education and Health Information Exchange Results also show that providers that received facilitation were smaller, located in more rural areas with less dense populations, and served populations with slightly lower education and income, and higher rates of unemployment and uninsured. A greater proportion of providers receiving facilitation were located in mental health professional shortage areas. For the remaining three measures, there was no statistically significant difference in performance between providers receiving and not receiving facilitation. Results also show that providers that received facilitation were smaller, located in more rural areas with less dense populations, and served populations with slightly lower education and income, and higher rates of unemployment and uninsured. A greater proportion of providers receiving facilitation were located in mental health professional shortage areas.

Background and Professional Experience
The resume review showed that only 44% of the 38 practice facilitators employed with NC AHEC in July of 2016 had formal experience in Health Information Technology, Health Information Management or Informatics fields.

The largest number of practice facilitators (47%) had some professional administrative experience, and 45% had a clinical background such as nursing, midwifery or other clinical field. An additional 16% had other related professional experience such as public health, social work or library sciences. (Note: many practice facilitators have experience in multiple related fields on their resume).

Ratings of Knowledge on Skills Assessment Survey
Table 2 (next page) shows the results tabulated for the core competencies in the key area of EHR incentive program requirements. Data show that facilitators report the greatest levels of knowledge in Meaningful Use Program Requirements. Over 50% of the facilitators reported having either a well-developed understanding or a thorough understanding of provider eligibility; attestation; access, overview and scope of the final rule; and modified objectives and measures. Facilitators reported a more basic understanding or need for more training in the elements of patient engagement, privacy and security, and data reporting.

A majority of facilitators indicated at least a basic understanding of Meaningful Use program specifics and HIPAA regulations, but less than a basic understanding of more technical skills. Given the more clinical and administrative backgrounds of facilitators (versus health IT), it is not surprising that there is a greater understanding of legislated programs, such as Meaningful Use and HIPAA, and less knowledge in specific technical standards such as Direct Messaging or Encryption technology. The intersection of the HIT heavy skills (such as reporting clinical data, the implementation of registries and the use of

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Table 2. Practice Facilitator Skills Assessment Survey Tabulation

Skill, Technology or Program Requirement	Request More Training	Basic Understanding	Well-developed Understanding	Thorough Understanding
Key Areas: CMS Medicare & Medicaid EHR Incentive				
Program Requirements				
Meaningful Use Provider Eligibility	15%	15%	28%	41%
Medicaid EHR Incentive Program attestation	18%	28%	18%	36%
Medicare EHR Incentive Program attestation	18%	23%	21%	38%
CMS EHR Incentive Program Final Rule access, overview and scope	18%	26%	28%	28%
Meaningful Use 2015-2017 modified objectives and measures	21%	23%	26%	31%
Patient Engagement				
Portal technology	26%	41%	21%	13%
Portal administration	36%	33%	18%	13%
Direct messaging technology	38%	41%	10%	10%
Privacy & Security				
HIPAA Privacy and Security (Technical)	28%	41%	15%	15%
Security risk assessment	23%	49%	15%	13%
Encryption technology	38%	49%	10%	3%
Data Reporting				
Clinical reporting (Meaningful Use)	10%	44%	15%	31%
Cancer registries	36%	38%	18%	8%
Immunization registries	33%	36%	23%	8%

encryption technologies) and the more administrative expertise can be seen in the Patient Engagement category in that these skills rely on administrative functions as well as an understanding of the CEHRT's ability to integrate with and populate patient portal technology. It is therefore interesting that Portal Administration skills lag behind the Portal Technology skills with 33% and 41%, respectively, reporting a basic knowledge in these areas. This may be explained in that "Portal Technology" refers to a software package that may perform a certain function and not a specific IT standard. In other words, one can understand what the Portal Technology needs to do (relay key clinical information to patients in a timely manner) and not necessarily the technical piece of how it is done. In addition, the success of a practice facilitator hinges not only on the knowledge they possess but also on the ability to assess a practice's

needs and refer practice leaders to appropriate resources. And since even Encryption Technology, at the lowest percentile, asserts that 13% of respondents have a well-developed or thorough understanding, then there are experts in each skill within the program to serve as resources for the statewide team of facilitators.

Table 3 (next page) shows results of the regressions examining the association of practice facilitation with performance on the first domain Meaningful Use measures of quality, safety, and efficiency. For brevity, only the coefficients on practice facilitation are shown. Full regression results are available in an appendix. After controlling for provider/practice, population and market characteristics, results suggest that providers that received practice facilitation had a higher percentage of patient encounters for which

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Table 3. Association of Practice Facilitation with Performance on Selected Quality, Safety and Efficiency Meaningful Use Measures

	Electronic Prescribing	CPOE Medication	CPOE Laboratory	CPOE Radiology
Practice Facilitation	2.67***	-0.22	-0.27	-0.33
Standard Error	(0.47)	(0.95)	(1.72)	(0.40)
N	4929	4398	3510	5426
R^2	0.1073	0.0434	0.1454	0.0463

Notes: Ordinary least squares regression analysis adjusted for selection using inverse probability weights. Standard errors adjusted for clustering of providers within practices. Regressions controlled for provider sex, meaningful use payment year, number of years in practice, patient panel size, practice affiliation with a hospital, provider specialty (cardiology, gastroenterology, family medicine, internal medicine), geographic location in a metropolitan or micropolitan statistical area, and county-level measures of education, per capita income, population density, race, unemployment, uninsured, and health professional shortage area status (primary care and mental health).
* $p < 0.1$

Table 4. Association of Practice Facilitation with Performance on Selected Patient Engagement and Care Coordination Meaningful Use Measures

	Electronic Access to EHR	Electronic Access to View, Download, Transmit	Patient Education	Medication Reconciliation	Health Information Exchange
Practice Facilitation	0.61	8.05***	-2.18	0.86	1.62
Standard Error	(0.63)	(3.04)	(2.58)	(0.79)	(5.32)
N	6,316	6,287	6,292	5,961	871
R^2	0.3507	0.3919	0.3191	0.0425	0.2279

Notes: Ordinary least squares regression analysis adjusted for selection using inverse probability weights. Standard errors adjusted for clustering of providers within practices. Regressions controlled for provider sex, meaningful use payment year, number of years in practice, patient panel size, practice affiliation with a hospital, provider specialty (cardiology, gastroenterology, family medicine, internal medicine), geographic location in a metropolitan or micropolitan statistical area, and county-level measures of education, per capita income, population density, race, unemployment, uninsured, and health professional shortage area status (primary care and mental health).
*** $p < 0.01$

providers met e-prescribing requirements (2.67 percentage points; p<0.01). The results appear to indicate there was no statistically significant difference in performance on CPOE requirements for medications, labs or radiology between the providers who received facilitation and those who did not.

Table 4 shows the results of regressions examining the association of practice facilitation with performance on meaningful use measures in the second and third domains of patient engagement and care coordination. Providers that received practice facilitation outperformed those who did not receive practice facilitation by 8.05 (p<0.01) percentage points on electronic access to health records for patients who viewed, downloaded and transmitted their health information.

However, there were no other statistically significant associations of practice facilitation with meaningful use performance.

IV. Discussion

Small, rural ambulatory care practices are often challenged by a lack of resources to hire new staff or cultivate new skills in their existing staff to meet the demands of increasing use of health information technology. Results of this analysis suggest that the deployment of a flexible workforce of practice facilitators into smaller, more rural practices in North Carolina may have helped to bridge the skill gaps and support the achievement of meaningful use performance measures. For example, providers receiving practice facilitation outperformed those not receiving practice facilitation on

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measures of e-prescribing and electronic access to health records. For the other meaningful use measures examined, there was no evidence of differential performance after controlling for provider/practice, population and market characteristics. Since existing evidence finds that smaller, more rural practices generally lag in the adoption, implementation, and meaningful use of electronic health records10, the results of this study suggest that facilitation may have helped enable providers facing greater challenges to perform at least as well as providers with access to greater resources.

Results of this study also suggest that effective practice facilitators have training and experience within a traditional healthcare profession as a foundation; however, additional training is necessary to allow them to assist with the many facets of changes needed to transform small, rural practices to meet the demands of the new delivery systems. This training includes, but is not limited to, skills in the use of health information technology. A model that builds upon the practice facilitator's experience in a traditional healthcare profession, and supports further, self-identified, training needs allows this new profession to draw from a variety of backgrounds. It also provides for a workforce that can be prepared quickly to meet the ever changing demands placed on ambulatory care. By using key adult-learning techniques and providing resources and tools that can be used to train on the job or accessed when needed, the NC AHEC program is able to retrain members of the existing workforce into practice facilitators who then assist in the training and support of other providers and staff in small, rural practices.

Although specific health information technology skills are not clearly present in all of the practice facilitators when hired, a strong professional background in healthcare and the continual introduction of a variety of skills such as change management, process improvement and workflow design are vital to the successful facilitation of changes required in the current healthcare environment. These varied skills are cultivated through learning and knowledge sharing structures such as those demonstrated in the NC AHEC practice facilitation program.

V. Limitations

This study has several limitations that should be considered when interpreting the results. First, it is a case study of a program in one state and may not be generalizable to all circumstances or settings. Second, results of the skills assessment survey are for a single year and do not measure changes in facilitator knowledge from baseline. Rather, the results provide a snapshot of how practice facilitators rate their knowledge after one to more than four years of facilitation experience with the NC AHEC program. Third, the analysis of effectiveness of the practice facilitation program is cross-sectional and cannot be used to determine a causal relationship between practice facilitation and performance on meaningful use measures. Still, despite these limitations, this is the first study that we are aware of to assess the experience, knowledge and effectiveness of practice facilitators in helping small and rural practices to achieve the goals of meaningful use. It provides evidence on a model that appears promising; thus, further research using longitudinal data should continue to explore the outcomes of facilitation.

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V. Conclusions/ Implications for Policy

The U.S. healthcare system is on course for at least a decade of tremendous transformative policy change at the federal and state levels. A flexible workforce that includes practice facilitators is needed to ensure that federal policy changes are implemented at the ground level of healthcare service delivery. The greater emphasis on primary and preventive care to reduce costs will require a consistent rise in the sophistication of delivery mechanisms within the primary care practice setting. The practice changes needed to meet the demands of new delivery models vary from practice to practice, and policies and best practices continue to evolve. Thus, there is currently no degree program that can meet the all the demands placed on ambulatory care practices in a rapidly changing environment. The use of practice facilitators to swiftly implement and spread knowledge and best practices across the country is an efficient and effective way to meet these demands. Such a workforce is especially important for protecting vulnerable small and rural practices.

The growing and emerging field of practice facilitation is strengthened by the diversity of the prior professional experience that facilitators bring to their roles, but strong training and support mechanisms must be in place. It is unrealistic to expect one individual or one profession to act as an expert in all of the different sectors of service delivery; however, it is possible to provide the practice facilitator with the resources, tools and training that they need to continually learn and adapt as well as to develop the skills needed at the time that they are needed for the practice. To that end, it is critical to encourage the regular self-assessment of these skills and to provide rich, accessible training resources that create the agility needed to fill the gaps when covering a variety of practices with a broad set of needs.

However, federal funding is needed to support a continual, life-long learning program (such as the one at the NC AHEC) to grow the practice facilitator workforce. Practice facilitation training programs must be strong, but agile, to keep pace with the growing breadth of skills required for primary care practices to succeed in the changing health care environment. While this comes at a cost, the cost of such programs may be well worth it if they are able to help the traditional healthcare workforce achieve the goals of higher quality of care at a lower, more sustainable, cost.

New federal payment mechanisms such as those implemented in the Medicare Access and CHIP Reauthorization Act (MACRA) will place a higher value on several key areas including the use of health information technology and clinical performance improvement activities to improve the health outcomes of beneficiaries by attaching a payment enhancement or reduction on a composite score of quality indicators. If a provider cannot effectively use his/her technology to show the improvements in their patient care, he/she will experience a considerable impact on their Medicare payment rate and could result in the loss of practices thus creating a critical issue with access to care in rural settings. These distinct foci in the MACRA legislation (health information technology and clinical performance improvement activities) will

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draw heavily on new skills such as change management, process improvement and workflow design that are not currently present in small, rural practices. This may have a detrimental impact on the fiscal viability of these practices if left unsupported. The use of practice facilitation to reduce some of the barriers faced in these vulnerable practices may help ensure their ability to continue to provide care to their disparate patient populations at the same standards as the care received by patients in larger, better resourced facilities. ❖

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Authors

Ann Lefebvre, MSW, CPHQ *is an Associate Director at the North Carolina AHEC Program at The University of North Carolina at Chapel Hill.*

Mary McCaskill *is the Health Information Technology Manager at the North Carolina AHEC Program at The University of North Carolina at Chapel Hill.*

Kristin Reiter, PhD *is an Associate Professor in the Department of Health Policy and Management at the Gillings School of Global Public Health at The University of North Carolina at Chapel Hill.*

Jason Mose, MS, MBA, CHFP, PhD *is a former doctoral student and Graduate Research Assistant from the Department of Health Policy and Management at the Gillings School of Global Public Health at The University of North Carolina at Chapel Hill.*

Erin Fraher, PhD, MPP, *is Director of the Carolina Health Workforce Research Center, an Assistant Professor in the Departments of Family Medicine and Surgery, and the Director of the Program for Health Workforce Research and Policy at the Cecil G. Sheps Center for Health Services Research at the University of North Carolina at Chapel Hill.*

Warren P. Newton, MD, MPH *is the Director of the North Carolina AHEC Program, Vice Dean, and the William B. Aycock Distinguished Professor in Department of Family Medicine at the University of North Carolina Chapel Hill School of Medicine. He is also a Senior Policy Advisor for the North Carolina Department of Health & Human Services.*

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