Does Patient-Centered Medical Home Recognition Relate to Accountable Care Organization Participation?

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Abstract

As of April 2015, less than 10% of Medicare Shared Savings Program Accountable Care Organizations (MSSP ACOs) included Rural Health Clinics (RHCs). In order to understand why RHCs are not participating in this ACO model in greater numbers, this study examined the influence of several factors on ACO participation. Data for this study were collected via a survey distributed during the summers of 2012, 2013, and 2014 to all RHCs in 9 states. This study had a cross-sectional design using survey research. The unit of analysis was the RHC; the total sample size was 178. This study found that those respondents who reported knowing very little about ACOs had the lowest “willingness to join an ACO” score and that the passage of time increased RHC willingness to join an ACO. Also, patient-centered medical home (PCMH) recognition was the most influential factor related to an RHC’s adopting the ACO model. If ACO model adoption is to increase in rural areas, this study suggests that strategies would need to include methods for (1) targeting RHCs that have PCMH recognition; (2) increasing PCMH recognition in rural areas; and (3) increasing RHC knowledge about what an ACO is, how the model works, and why this model may benefit RHCs and other rural primary care providers.

Keywords: accountable care organizations, patient-centered medical home, diffusion of innovation theory

Introduction

THE AFFORDABLE CARE ACT ushered in a new kind of health care system designed to provide coordinated patient care: the accountable care organization (ACO). ACOs strive to connect physicians, hospitals, private clinics, and other health providers so as to improve the patient experience and patient care. As of 2017, 480 Medicare Shared Savings Program (MSSP) ACOs served 9.0 million Medicare beneficiaries in 49 states plus Washington, DC and Puerto Rico.¹ ACO formation varies from region to region across the nation – the largest number of ACOs are in the Department of Health and Human Services’ Region 4 (Southeastern states) while Region 10 (Western states) has the fewest. Overall, MSSP ACOs continue to succeed in improving care and lowering cost growth.^{1,2} Despite the rapid spread of ACOs, however, they are still a new model; consequently, many health care providers have reservation about joining them.

Rural Health Clinics (RHCs) are some of the health care providers considering joining ACOs. RHCs are primary care

clinics certified by Medicare to serve the health care needs of rural populations. On October 20, 2011, the Centers for Medicare & Medicaid Services (CMS) released regulations to help doctors, hospitals, and other health care providers better coordinate care for Medicare patients through ACOs. The regulations included several specific provisions designed to increase rural participation in the MSSP.³ However, as of April 2015, only 35 MSSP ACOs included RHCs.¹ Therefore, there is a need to understand better why these rural health care providers are not participating in this ACO model in greater numbers.

Theoretical Foundation and Literature Review

The “innovation-decision process” is “the process through which groups pass from first knowledge of an innovation [knowledge stage], to forming an attitude toward the innovation [persuasion stage], to a decision of adoption or rejection [decision stage], to implementation of the new idea [implementation stage], and to confirmation of this decision

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[confirmation stage].”⁴ Studies have shown that lack of knowledge affects the adoption of innovation.^{5,6} One such study found that the physicians of Alabama who had a negative attitude toward ACOs had a lower likelihood of participating in an ACO in the next 3 years.⁷ On the other hand, a positive perception about ACOs may facilitate the process of RHCs joining ACOs.⁸

In the persuasion stage, individuals’ attitudes are influenced by what Rogers⁴ identifies as 5 core characteristics of innovation: relative advantage, compatibility, complexity, trialability, and observability. Among these characteristics, the most important in affecting innovation is a high compatibility attribute, whereas the other factors have equal influence.^{9–15} The compatibility attribute describes the organizations’ existing values and their past experiences.

Today, a primary care practice has the choice of participating in a variety of health care delivery models. In addition to participating in an ACO, a primary care practice may choose to become a patient-centered medical home (PCMH). In 2008 the National Committee for Quality Assurance (NCQA) became the first institution to establish a PCMH recognition. Today this recognition also is provided by other accrediting bodies, such as the Accreditation Association for Ambulatory Health Care, URAC, and The Joint Commission.¹⁶

According to NCQA, “the patient-centered medical home is a way of organizing primary care that emphasizes care coordination and communication to transform primary care into what patients want it to be.”¹⁷ PCMH emphasizes first contact, continuous, comprehensive, whole-person care for the patient across practice sites.¹⁸ Thus, both PCMHs and ACOs have the same core value of delivering coordinated care to patients.¹⁹ Additionally, Longworth²⁰ pointed out that ACOs having member organizations that are PCMHs can increase their success because PCMH plays an important role in a team approach to care. Kibbe²¹ found that if an ACO’s operation is based on primary care, the PCMH factor would increase the efficiency of an ACO model. Therefore, the high compatibility between PCMHs and ACOs may imply that RHCs that are currently PCMHs or are planning to become PCMHs may be better aligned with or absorbed into the ACO model. In this study, RHC commitment to and the extent of being a PCMH are considered as compatibility factors.

In the present coordinated health care era, RHCs are assumed to have a good potential opportunity with the ACO model. Network affiliation is key to making health care institutions efficient.^{22,23} Mackinney and colleagues²⁴ suggested that rural providers should use a network with a larger health care systems strategy to establish ACOs. Wan and colleagues²⁵ emphasize how organizations with a large health provider network size increase their likelihood of participating in an ACO. However, many RHCs are not familiar with ACOs as a new health care delivery model.²⁶ Furthermore, most RHCs do not have the human, financial, and material resources necessary to respond to the challenges of ACO implementation.²⁷

Investment in infrastructure such as health information technology (IT) is important to ACO formation.²⁸ Yet many RHCs have reported that they have inadequate capital to improve their IT systems.²⁶ According to Apple,²³ the IT complexities involved in an ACO cannot be overstated. Cross-organizational

collaborative care is the only way to achieve an ACO’s goal of improving outcomes and reducing costs. Considering this, IT infrastructure is a critical factor for ACO success.^{23,29} However, developing health IT infrastructure is the most challenging part of ACO implementation.³⁰

This study attempts to develop a larger picture of the complex deciding factors that play into an RHC joining an ACO. Based on the innovation-decision process and previous studies’ findings, the focal point of this research was how PCMH recognition, as well as RHC knowledge about ACOs, the compatibility attribute, network affiliation, and information infrastructure, influence RHC participation in ACOs.

Methods

Research design

This study had a cross-sectional design using survey research. The unit of analysis was the RHC. A survey was distributed during the summers of 2012, 2013, and 2014 to all RHCs in 9 states (Kentucky, North Carolina, South Carolina, Georgia, Florida, Tennessee, Alabama, Mississippi, and California). Before distribution of the survey, a pilot survey was sent to random clinics in the study states. Pilot results showed that the design of the final survey needed no modifications. The pilot and final survey were distributed by mail. Respondents had the option of mailing or faxing their responses back to the researchers.

Survey instrument

The survey covered 3 domains: characteristics of RHCs, RHC health care delivery models, and data collection and information infrastructure. Two specific questions addressed the RHC’s willingness to join an ACO. In the first question, RHC personnel were asked to identify to what extent their clinics were participating in an ACO. When RHCs were neither currently in an ACO nor implementing changes to participate in an ACO within the next year, they were asked a second question about the extent to which they were willing to join an ACO. The willingness scale ranged from zero to 10, with zero indicating not willing to join an ACO, and 10 indicating completely willing to do so. (If RHCs were currently in an ACO, the willingness score was coded as 12.) The final “willingness score” was aggregated from the 2 questions.

Analysis

For any clinic that responded in multiple years, only their first reported survey was coded and analyzed. For example, for a clinic that responded to both the Year 1 survey and the Year 2 survey, only their Year 1 survey results were included. All 3 years of survey data were entered using SPSS 22.0 software (IBM Corporation, Armonk, NY).³¹ Two researchers checked each entry. In the initial stage of the analysis, the researchers used descriptive statistics to understand the distribution of the survey years, the characteristics of the respondent RHCs, the RHCs’ knowledge about ACOs, and their willingness to join an ACO. In the second stage of the analysis, an independent *t* test or one-way analysis of variance was performed to examine the difference of willingness to join an ACO as related to the survey

years, the characteristics of RHCs, and the extent of the RHC manager's knowledge about ACOs. Finally, the researchers used multiple linear regression to explore which factors were associated with a greater willingness to join an ACO. Statistical significance was set at a $P < .05$.

Ethics approval

This research was approved by the University of Central Florida Human Subjects Institutional Review Board (SBE-08-058861047423).

Results

Respondent characteristics

After 3 years of survey distribution, there were 257 respondents. From this sample, the study team excluded 7 clinics that had responded in both Year 1 and Year 2. Because the pilot survey and the final survey contained the same questions, the team randomly selected a survey response from among the duplicated cases to retain for the analysis. Of the resulting 250 cases, 125 RHCs responded to the Year 1 survey, 35 RHCs responded to Year 1 and Year 2 surveys, 1 RHC responded to Year 1 and Year 3, and 18 RHCs responded in all 3 survey years. After excluding the 72 cases in which RHCs responded in multiple years, the resulting sample size was 178. Using the combined data for 3 survey years, the study team attained a 10.72 response rate (178/1659) using the total number of RHCs in Region 4 and California as reported in the Provider of Services for either the year 2007, 2012, 2013, or 2014.³²

Table 1 describes the characteristics of the RHCs that responded to the survey. Of the survey respondent clinics, almost 40% were located in California and Florida, three quarters were independent, more than 20% had formal network affiliations, and more than 12% had informal network affiliations. In response to questions concerning commitment, RHC managers agreed or strongly agreed that their top priorities were improving employees' performance and accountability (97.75%), improving the value of service (97.18%), and improving the value of patient-centric care (91.57%). In response to questions on data collection and information infrastructure, most RHCs reported that they collect data for tracking and analysis. Twenty-five percent had not implemented electronic medical records (EMR) systems, but 82.61% (38/46) of those reported that they would like to adopt EMR in the future. Less than 7% of RHCs had PCMH recognition, and more than 16% plan to become a PCMH (Table 1).

Knowledge about ACOs and willingness to join an ACO

Table 2 describes RHC knowledge about and willingness to join an ACO. At the time of the survey, more than 43% of the RHCs reported that they knew very little about ACOs, whereas more than 15% reported that they were very knowledgeable or knowledgeable about ACOs. In this study, 96% did not participate in ACOs during the years 2012 to 2014. The degree of willingness to join an ACO was moderate (5.79 points).

TABLE 1. CHARACTERISTICS OF RESPONDENT RURAL HEALTH CLINICS

<i>Variables</i>	<i>Frequency</i>	<i>Percent</i>
State*		
California	36	20.45%
Alabama	16	9.01%
Florida	33	18.75%
Georgia	8	4.55%
Kentucky	22	12.50%
Mississippi	11	6.25%
North Carolina	17	9.66%
South Carolina	23	13.07%
Tennessee	107	5.68%
RHC Type		
Provider-Based RHC	44	25.00%
Independent RHC	132	75.00%
Survey Year		
2012	87	48.88%
2013	49	27.53%
2014	42	23.60%
Clinic's Commitment		
Improving the value of services		
Disagree/Strongly Disagree	4	2.24%
Agree	77	43.25%
Strongly Agree	96	53.93%
Missing	1	0.56%
Improving the value of patient-centric care		
Disagree/Strongly Disagree	12	6.74%
Agree	68	38.20%
Strongly Agree	95	53.37%
Missing	3	1.69%
Improving employees' performance and accountability		
Disagree/Strongly Disagree	3	1.69%
Agree	75	42.13%
Strongly Agree	99	55.62%
Missing	1	0.56%
Network Affiliation		
Current RHC model		
Independent	113	63.48%
Formal affiliation	37	20.79%
Informal affiliation	23	12.92%
Both Affiliation	4	2.25%
Missing	1	0.56%
Data Collection and Information Infrastructure		
Data Collection for Tracking and Analysis		
Yes	128	71.91%
No	46	25.84%
Missing	4	2.25%
RHC's Information Infrastructure		
Use an EMR system	132	74.16%
Willingness to adopt an EMR in the future	38	21.35%
No	5	2.81%
Missing	3	1.69%
Extent of Being a PCMH		
Currently a PCMH	12	6.74%
Implementing changes to become a PCMH	29	16.20%
Not eligible	11	6.29%
Eligible but will not participate for another 1 – 2 years	9	5.06%
Eligible but not interested	9	5.06%
Not yet sufficiently knowledgeable about PCMH	100	56.18%
Missing	8	4.49%

NOTE * There was no provider number for 2 out of 178 RHCs, so no state and RHC type information can be tracked.

EMR, electronic medical record; PCMH, patient-centered medical home; RHC, rural health clinic.

TABLE 2. RURAL HEALTH CLINIC KNOWLEDGE ABOUT ACCOUNTABLE CARE ORGANIZATIONS AND THEIR WILLINGNESS TO JOIN AN ACCOUNTABLE CARE ORGANIZATION

<i>Variables</i>	<i>n</i>	<i>%</i>
To What Extent Are You Knowledgeable About ACOs?		
Very knowledgeable or knowledgeable	28	15.73%
Somewhat knowledgeable	70	39.33%
I know very little about ACOs	77	43.26%
Missing	3	1.69%
To What Extent Is Your Clinic Participating in an ACO?		
Currently in an ACO	7	3.93%
Implementing changes to participate in an ACO within in the next year	16	8.99%
Not eligible to participate in an ACO	8	4.49%
Eligible but not interested in participating for another 1 – 2 years	15	8.43%
Not yet sufficiently knowledgeable about the ACO model and its requirements	99	55.62%
No ACOs in my area to my knowledge	24	13.48%
No ACOs in my area wish to partner with RHCs at this time to my knowledge	3	1.69%
Missing	6	3.37%
Willingness to Have Your RHC Join an ACO (0: not willing; 12: completely willing), mean (SD)	5.79	3.66

ACO, accountable care organization; RHC, rural health clinic.

Factors associated with RHC willingness to participate in an ACO

Table 3 details factors affecting RHC willingness to join an ACO. Among other relationships, it indicates a positive relationship between the survey year and willingness join an ACO. That is, the RHCs responding in the last survey year had a greater willingness to participate in an ACO ($P=0.009$). Although no statistically significant results were found in the state, RHC type, degree of clinic commitment, type of network affiliation, and usage of information infrastructures, in bivariate analyses, the study team found 2 other interesting indications of what may contribute to willingness to join an ACO. For example, RHCs that were more knowledgeable about ACOs had a greater willingness to join an ACO ($P=.002$). When RHCs were eligible but not interested or not participating as a PCMH, their willingness to join an ACO was very low compared to RHCs that were PCMHs or implementing changes to become PCMHs ($P<.001$).

Predictors of willingness to join an ACO

Table 4 reports the results of a multiple linear regression analysis of the predictors of a greater willingness to join an ACO. Only those variables that were statistically significant at the .05 level in bivariate analyses were included in the model, namely: survey year, extent of being a PCMH, and level of knowledge about ACOs.

As shown in Table 4, the RHCs' willingness to participate in an ACO was 0.93 and 2.31 points higher for the years 2013 and 2014 respectively, as compared to the reference year of 2012. As a group, those RHCs that were currently PCMHs or implementing changes to become PCMHs were more than 3 points higher on the "willingness to join an ACO" scale. The group with more knowledge about ACOs had a greater willingness to participate in an ACO than the group with little knowledge. In the regression model, the 3 variables (survey year, extent of being a PCMH, and level of knowledge about ACOs) explained 19.3% of the willingness to join an ACO. Of the 3 predictor variables, the extent of being a PCMH was the strongest predictor of willingness.

Discussion

The effect of time and knowledge about ACOs

This study found that those respondents who reported knowing very little about ACOs had the lowest "willingness to join an ACO" score (4.65). This result is consistent with other studies that showed that lack of knowledge decreased the adoption of innovation.^{6,33} In an earlier survey, it was found that RHC managers' knowledge of ACOs, as well as their perceptions of the benefits of ACOs, played an important role in their willingness to join them.³⁴

Additionally, the present study finding is consistent with how the innovation-decision process works.⁴ In the knowledge stage, managers would start to learn how an ACO functions. At this stage, their knowledge can be influenced by the characteristics of the decision-making unit (or decision makers), including their socioeconomic characteristics, personality characteristics, and communication behaviors. Another study found that media use and communication inequalities can influence people's knowledge.³⁵ These findings suggest that a reevaluation of the means of communicating the ACO model and its benefits to providers may be warranted.

The time element can influence the diffusion of innovation. It is involved in the innovation-decision process from the knowledge stage to the confirmation stage because of its time-ordered sequence.⁴ This study found that the passage of time increased RHC willingness to join an ACO. A possible explanation for this change is that, over time, RHCs learn what an ACO model is and how it works. Time could play an important role in knowledge and understanding; therefore, from CMS's perspective, frequent refresher information is important to reach RHCs.⁵

The relationship between PCMH recognition and ACO participation

The present analysis revealed that, compared to survey year and level of knowledge about ACOs, PCMH recognition was the most influential factor related to an RHC adopting

TABLE 3. FACTORS AFFECTING RURAL HEALTH CLINICS' WILLINGNESS TO JOIN AN ACCOUNTABLE CARE ORGANIZATION

<i>Variables</i>	<i>N</i>	<i>Mean</i>	<i>SD</i>	<i>P value</i>
State				.657
California	30	5.50	3.99	
Alabama	10	6.40	4.12	
Florida	28	6.50	3.76	
Georgia	6	4.50	2.51	
Kentucky	16	5.00	3.06	
Mississippi	9	5.00	2.121	
North Carolina	17	5.00	3.91	
South Carolina	19	6.89	3.77	
Tennessee	8	5.50	4.07	
RHC Type				.352
Provider-based RHC	35	6.26	3.47	
Independent RHC	108	5.59	3.72	
Survey Year				.009*
2012	74	4.96	3.70	
2013	40	6.18	3.54	
2014	31	7.26	3.24	
Clinic's Commitment				
Improving the value of services				.527
Disagree/Strongly Disagree	3	3.67	2.31	
Agree	63	5.71	3.46	
Strongly Agree	78	6.00	3.82	
Improving the value of patient-centric care				.116
Disagree/Strongly Disagree	9	3.44	2.46	
Agree	55	5.95	3.24	
Strongly Agree	78	6.08	3.92	
Improving employees' performance and accountability				.704
Disagree/Strongly Disagree	3	4.33	1.16	
Agree	59	6.02	3.44	
Strongly Agree	82	5.74	3.84	
Network Affiliation				.075
Current RHC model				
Independent	91	5.23	3.63	
Formal affiliation	30	7.17	3.302	
Informal affiliation	20	6.15	3.98	
Both affiliation	3	7.00	3.61	
Data Collection and Information Infrastructure				
Data Collection for Tracking and Analysis				.277
Yes	105	5.97	3.76	
No	40	5.25	3.37	
RHC's Information Infrastructure				.242
Use an EMR system	106	6.00	3.67	
Willingness to adopt an EMR in the future	32	5.81	3.31	
No	5	3.20	4.55	
Extent Of Being A PCMH				<.001*
Currently, a PCMH/implementing changes to become a PCMH	37	7.62	4.04	
Not eligible	9	4.67	3.97	
Eligible but will not participate for another 1 – 2 years/ Eligible but no interest	17	3.65	2.32	
Not yet sufficiently knowledgeable about PCMH	77	5.39	3.25	
To What Extent Are You Knowledgeable About ACOs?				.002*
Very knowledgeable or knowledgeable	28	7.64	4.44	
Somewhat knowledgeable	64	5.94	3.38	
I know very little able ACOs	52	4.65	3.06	

NOTE 0: not willing; 12: completely willing

* This indicator is statistically significant at $P < .05$.

ACO, accountable care organization; EMR, electronic medical record; PCMH, patient-centered medical home; RHC, rural health clinic

TABLE 4. MULTIPLE LINEAR REGRESSION ANALYSIS FOR RURAL HEALTH CLINICS' WILLINGNESS TO PARTICIPATE IN AN ACCOUNTABLE CARE ORGANIZATION

Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t	P value
	B	Std. Error			
Constant	1.68	0.97		1.74	.084
Survey Year					
2014	2.31	0.71	0.27	3.27	.001
2013	0.93	0.67	0.12	1.39	.167
2012 (<i>Reference</i>)					
Extent Of Being A PCMH					
Currently a PCMH/implementing changes to become PCMH	3.47	0.97	0.42	3.59	<0.001
Not yet sufficiently knowledgeable about PCMH	2.32	0.90	0.32	2.58	.011
Not eligible	1.04	1.36	0.08	0.89	.376
Eligible but will not participate for another 1 – 2 years/Eligible but not interested (<i>Reference</i>)					
To What Extent Are You Knowledgeable About ACOs?					
Very knowledgeable or knowledgeable	2.51	0.85	0.27	2.95	.004
Somewhat knowledgeable	1.17	0.65	0.16	1.82	.072
I know very little about ACOs (<i>Reference</i>)					

NOTE: R-square: 23.4%; adjusted R-square: 19.3%

ACO, accountable care organization; PCMH, patient-centered medical home.

the ACO model. This result is consistent with Shortell et al's findings³⁶ and the innovation-decision process.⁴ Shortell et al³⁶ used an index of 25 items to describe PCMH processes, finding a positive association between the overall PCMH index and ACO participation. In the innovation-decision process, the persuasion stage can be impacted through the individual's (or other decision-making unit's) perception of the 5 core characteristics of the innovation. Among the 5 core characteristics, high compatibility is the most important attribute in adopting an innovation. Edwards et al.³⁷ observed that PCMH and ACO are complementary health care reform models. Both PCMH and ACO play significant roles in improving the patient's quality of care and reducing medical costs.³⁸ Ideally, primary care practices are at the center of a patient's care in an ACO, and PCMH is considered as an essential element of a successful ACO.³⁹ Such compatibility may explain why an RHC that is currently a PCMH or implementing changes to become a PCMH would have a greater willingness to participate in an ACO.

Although knowledge about ACOs, the passage of time, and PCMH recognition are factors that influence an RHC's participation in an ACO, there are barriers that may preclude an RHC from doing so. RHCs have cited inadequate financing for IT system improvement, and legal and regulatory barriers as deterrents.²⁶ Moreover, many report that the low Medicare population base in their service areas limits their ability to join Medicare ACOs, or their enthusiasm about joining.

Finally, sufficient and competent staff positively influence RHC performance.⁴⁰ However, RHCs still have difficulty recruiting physicians, physician assistants, and nurse practitioners.²⁷ This challenge may make RHCs more likely to focus their attention on employee performance and the value of services for the present, rather than participate in newer forms of health care delivery such as PCMH and ACOs.

Limitations

One limitation of this study is that the 10.79% response rate for 3 years of survey is not high. However, it still may be ac-

ceptable for an ACO-related survey. This rate is much higher than the 5% response rate of a recently conducted survey of physician participation in ACOs.⁷ In addition to the response rate, the study team assessed differences between respondents (n=176) and nonrespondents (n=1483) concerning RHC location at the state level and RHC type. The study team found differences: a higher proportion of responding RHCs were from Florida, and a lower proportion of RHCs were provider based than nonrespondents. Despite the low response rate and potential biases by comparing respondents with nonrespondents, the study findings provide insight into primary care providers' attitudes about ACOs at this early stage in ACO history.

Conclusions

This study examined critical factors affecting RHCs' willingness to participate in an ACO, with a particular focus on the influence of PCMH recognition. Compared to the survey year and level of knowledge about ACOs, this study found that the extent of being a PCMH was the strongest predictor of RHC willingness to participate in an ACO. If RHCs are both PCMHs (or planning to become PCMHs) and knowledgeable about ACOs, their willingness to join an ACO increases. If ACO model adoption is to increase in rural areas, this study suggests that strategies would need to include methods to: (1) target RHCs that have PCMH recognition; (2) increase PCMH recognition in rural areas; and (3) increase RHCs' knowledge about what an ACO is, how the model works, and why this model may benefit RHCs and other rural primary care providers.

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