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Participation of Rural Healthcare Providers in Accountable Care Organizations: Early Indications

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Abstract

Recently, some Rural Health Clinics (RHCs) throughout the country have chosen to join groups of health care providers in Accountable Care Organizations (ACOs). Examined are characteristics of Southeastern RHCs and the counties they serve; it is shown how those characteristics compare to other regions across the country and suggested what role those differences might play in an RHC's decision to participate in an ACO. RHC-related data were collected and summarized for two time periods: 2007 and 2011: For 2007 data from RHCs throughout the U.S.; for 2011 summarized demographic data related to Region 4 RHCs specifically. Several characteristics about Region 4 RHCs indicate that they may be slow to participate in ACOs. However, other characteristics, including their perception that ACOs may improve the quality of care and health outcomes of their patients and communities, may facilitate the process of RHCs joining ACOs, should they choose to do so. Addressing the healthcare needs and healthcare quality of rural populations must be part of the design, development, and performance monitoring of ACOs of the future.

Keywords

Rural health; Accountable Care Organizations; primary healthcare

Background

About one in five Americans is a rural resident. Whether they live in a desert area, farmland, or a retirement community, rural residents are generally poorer and more elderly than their urban counterparts. They are more likely to have cardiovascular disease, hypertension, and other chronic conditions. Despite the health care needs of this population, only about one in ten U.S. physicians serves rural residents.

This paper concerns a prominent provider of rural healthcare: the Rural Health Clinic (RHC). The approximately 4,000 RHCs existing today are primary care clinics certified by means of the Rural Health Clinic Program, which was established in 1977 to improve access to primary care in underserved rural areas¹. RHCs exist in two classifications: Provider-based (those operated by a hospital, nursing home, or home health agency) and Independent (those that are generally stand-alone). Recently, some RHCs throughout the country have

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changed status from Independent to Provider-based, or have chosen to join groups of health care providers in Accountable Care Organizations (ACOs) or integrated delivery systems.

This study focuses on RHCs in Region 4 (as designated by the Department of Health and Human Services, DHHS), which comprises Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Mississippi, and Alabama. The analysis for this paper is part of a larger study concerning RHCs in Region 4, the purpose of which is to analyze ACO participation and other factors that influence RHC patient outcomes and efficiency. The intent of this paper is to examine some characteristics of RHCs in Region 4 and the counties they serve, show how those characteristics compare to other regions across the country, and then infer what role those differences might play when Region 4 RHCs are deciding whether or not to participate in an ACO.

Factors Contributing to ACO Participation

The Accountable Care Organization is a new model for healthcare delivery that seeks to provide high quality care while decreasing overall healthcare-related costs. ACOs are developing throughout the country in a variety of models. One of these – the Medicare ACO – is more likely to have RHC participation. It is described as groups of doctors, hospitals, and other healthcare providers who come together voluntarily to give coordinated high quality care to the Medicare patients they serve².

Little is known about the extent to which RHCs will participate in ACOs or the factors that will contribute to their willingness to join ACOs. Much of the literature to date describes ACOs as a whole, rather than describing their component parts. These studies describe characteristics of ACOs, the growth of ACOs nationwide, and possible factors contributing to ACO success. One such study analyzed ACO growth throughout the U.S. and the characteristics of ACOs existing through the end of May 2012³. Among its major findings were that: 1) the number and types of ACOs are growing, 2) non-Medicare ACO models are more diverse than Medicare ACO models, and 3) the relative success of different ACO models has yet to be determined.

Another body of literature describes factors that influence hospital participation in ACOs. Wan and colleagues⁴ found that the size of health networks (as measured by the number of hospitals or the hospital system's network affiliations) contributed to a pro-ACO orientation. In one of the few studies of rural ACOs, Huff⁵ found that rural hospitals that participate in Medicare ACOs have a long-standing relationship with local doctors, have experience mining their EHR systems for financial and patient treatment patterns, and have practiced several approaches to minimizing hospital admissions.

Recently, findings on the participation of physician practices in ACOs are emerging. In their examination of physician practice participation in ACOs, Shortell and colleagues⁶ found that practices that were large, received patients from an IPA/PHO, and/or demonstrated capability to change how care is delivered were positively associated with ACO participation. On the other hand, those owned by a hospital, system, or HMO were negatively associated with ACO participation. Based on findings from a survey, Wan and colleagues found that Rural Health Clinic managers were more willing to join ACOs if they

were knowledgeable about ACOs or if they perceived a benefit in joining ACOs, such as the potential for improving the quality of health of their patients and their communities⁴.

Methods

RHC data were collected and summarized for two time periods: 2007 and 2011. For 2007, data from RHCs throughout the U.S. were used to summarize five characteristics: 1) RHC classification (Provider-based vs. Independent), 2) demographics of counties that RHCs serve, 3) RHC organizational characteristics, 4) RHC quality of care, and 5) RHC productivity and clinical outcomes. For 2011, demographic data for Region 4 RHCs specifically were summarized. (See Appendix for a list of the study variables and their operational definitions.)

Data Sources

The study population consisted of all RHCs operating during 2006 - 2012 as reported in the CMS Online Survey, Certification and Reporting (OSCAR) database⁷. The source of demographic data describing the counties in which RHCs were located was the Area Health Resource File (AHRF) Access System⁸. The source of data on operational characteristics was the Medicare Cost Report^{9,10}.

Analysis

Data were analyzed for the two time periods. From the study population, a study panel was developed consisting of all RHCs continuously in operation from 2006 through 2007. The data were organized into the ten DHHS Regions¹¹. (See Figure 1.) The means were then calculated for each of 21 variables and qualitatively compared Region 4 values to the values for each of the 9 other regions using 2007 data. In addition, correlation statistics were calculated on the relationships between outcomes and select demographic and structural characteristics. For 2011, the analysis was limited to Region 4 RHCs, and summarized data on RHC classification and several demographic characteristics for counties in which RHCs were located. All calculations were performed using SPSS Version 20 software¹².

Results

Comparison of means by region and over time

In this section, some of the more interesting findings regarding the characteristics of RHCs and the populations they serve are described, with a particular focus on Region 4 RHCs. Then, findings that may influence an RHC's willingness to join an ACO are discussed.

RHC Classification—Of the ten DHHS regions, Region 4 had the highest total number of RHCs (796 in 2006 - 2007; 926 in 2011). Region 4 also had the highest number of Independent RHCs (572 in 2006 – 2007; 635 in 2012). (Figure 2).

Context—For each region, the means were calculated for several “context” or demographic variables for the counties in which the RHCs were located. Of the ten regions, Region 4 counties had the lowest median household income (\$32,752 for 2007), and the highest

percentage of persons in poverty (21% in 2007; 24% in 2011). While the percentage of African-Americans in Region 4 has remained relatively stable at 23% in both 2007 and 2011, the percentage of Hispanics has grown from 4% in 2007 to 5% in 2011. Region 4 had the lowest number of primary care physicians per thousand population. (The number of primary care physicians was calculated as the number of active GP+FP+DO physicians per thousand population.)

Design—For each region, the means for several “design” or organizational structure variables were calculated. RHCs are classified into 11 categories by ownership or auspices. These 11 categories were then collapsed into the following 3 categories: for-profit, non-profit, and government. Of all the regions, Region 4 had the second highest proportion of for-profit RHCs (63% in 2007).

Region 4 RHCs ranked in the middle compared to all regions in “size” (at 2.76 total FTEs for physicians, PAs, and NPs; 3.11 in 2011). In 2007, Region 4 had the second highest proportion of NPs (41%) as compared to other regions, whereas the proportion of PAs was the lowest along with Region 6 (at 14%).

Years of Medicare certification was used as a proxy for age of the RHC. RHCs in Region 4 were found to be the third “youngest” among all 10 regions (mean age in 2007 of 11.05 years).

Productivity Outcomes—As a measure of productivity, the mean number of visits for each of three professional clinical positions - physicians, PAs, and NPs - was determined. For NPs in 2007, Region 4 ranked the third most productive of all regions at 2,829 visits per NP full-time equivalent (FTE). This mean is well above the productivity standard of 2,100 visits for NPs and PAs as established by the Centers for Medicare and Medicaid Services¹⁴. The mean number of visits per physician FTE in Region 4 was about the same as for other regions (at 4,258). For PAs, Region 4 ranked in the middle relative to other regions at 1,870 visits per PA FTE. The productivity by clinical position in 2011 was compared to that for 2007, finding an increase in productivity across all categories of clinical positions.

Quality—To assess quality for each region, two categories of variables were constructed: quality of care variables and patient outcome variables. To assess quality of care, several indicators of prevention of chronic conditions were included. To assess patient outcomes, we included several ambulatory care sensitive condition (ACSC) rates. For each of two chronic conditions - diabetes and congestive heart failure - a “prevention” variable was calculated as the number of claims for preventive services for that condition divided by the total patient claims for that condition¹⁶. The ACSC rates were calculated as the number of claims for an avoidable inpatient Medicare visit related to each of the two chronic conditions. The means for all of these quality-related variables were then calculated.

For the provision of prevention services, Region 4 ranked about the middle compared to other regions in 2007. However, Region 4 ranked third highest for ACSC rates related to diabetes, and it was one of 3 regions with the highest ACSC rates related to congestive heart failure.

When comparing the 2011 patient outcome variables for 2011 to 2007, the picture was found to be mixed. While the ACSC rates for COPD and CHF remained relatively stable, there were declines in ACSC rates for diabetes and pneumonia.

Correlation analysis for region 4

In order to examine the possible contributors to productivity and patient outcomes, correlation analysis of the Region 4 study variables was conducted using 2007 data. The following variables were found to be significantly and positively related: physicians per thousand population and percent of population that is over age 65 ($r = .540, p < .01$); and visits per NP FTE and visits per physician FTE ($r = .602, p < .01$). The following variables were significantly and negatively related: percent in poverty and physicians per thousand population ($r = -.153, p < .01$); percent NPs and percent physicians ($r = -.697, p < .01$); and percent NPs and percent PAs ($r = -.589, p < .01$).

Discussion

Several characteristics about Region 4 RHCs indicate that they may be slow to participate in ACOs. However, other characteristics, including their perception that ACOs may improve the quality of care and health outcomes of their patients and communities, may facilitate the process of RHCs joining ACOs, should they choose to do so.

ACO dispersion throughout the U.S

ACO development has not, as yet, favored rural nor Southeastern areas. Overall, the growth of ACOs has been centered in larger metropolitan regions rather than rural areas³. Also, fewer ACOs have developed in southern states, the Great Plains, and the Mountain West regions than would be expected based on their populations.

Highest number of independent RHCs

Our analysis showed Region 4 had the highest number of RHCs compared to all other regions. Of these, Region 4 had the highest number of Independent or unaffiliated RHCs. Early indications are that physician practices owned by hospitals are not associated with ACO formation⁶. If these trends continue, Independent RHCs might be more likely than Provider-based (usually hospital-owned) RHCs to join ACOs. On the other hand, practices such as Independent RHCs that have a history of operating autonomously may deter them from participating in ACOs or other formal networks.

Highest percentage of persons in poverty

Of the ten DHHS regions, Region 4 had the highest percentage of persons in poverty and the lowest median income. Seven of the eight Region 4 states had a higher percentage of rural populations as compared to the U.S. population overall. Early studies of ACOs have shown that poorer and rural regions have little ACO growth. Thus, RHCs serving rural areas of the Southeast may have fewer ACOs with which to affiliate.

High proportion of NPs

Although Region 4 had the lowest number of primary care physicians per thousand population compared to other regions, it had the second highest proportion of NPs. It appears that the lack of primary care physicians in the region is being offset by the supply of NPs. As a professional group, NPs were very productive – the region ranked third most productive of the ten regions. The high proportion of NPs suggest that NPs will take leadership roles in any change to the health care delivery system in Region 4 rural areas. Region 4 ACOs that encompass rural partners must plan to involve NPs in contractual negotiations and quality of care monitoring and reporting.

Many, new RHCs

Region 4 had the highest total number of RHCs at 796 and had the third youngest among all 10 regions, having an average age in 2007 of 9.44 years. (The youngest RHCs average only one year younger.) These two facts reveal that Region 4 has many, young RHCs. This characteristic could also be an impediment to many RHCs participating in ACOs, as they could likely be more concerned with figuring out how to be an effective RHC and unwilling to take on the additional challenges that membership in an ACO brings with it.

Push and pull

The following variables were found to be significantly and positively related: physicians per thousand population and percent of population that is over age 65 ($r = .540$, $p < .01$). Conversely, there was a statistically significant inverse relationship between the percent of persons in poverty in Region 4 counties where RHCs were located and the number of primary care physicians per thousand population. This paints a picture of two opposing forces: one attracting physicians to an area (the pull toward areas with older populations) and another “pushing” them away (the push away from areas with impoverished populations). It appears that, however, the lack of primary care physicians is being offset, in part, by the high numbers of NPs in Region 4. At any rate, these forces in Region 4 reinforce the need for NPs to be involved in the design, leadership, and guidance of ACOs.

High ACSC rates related to diabetes and CHF

Region 4 ranked third highest for ACSC rates related to diabetes, and was one of the three regions with the highest ACSC rates related to CHF. While these characteristics do not have bearing on an RHC's willingness to join an ACO, they speak to the **potential benefit that ACOs may provide for populations of Region 4**. Region 4 states have a high prevalence of obesity, heart disease, diabetes, and other chronic diseases¹³. A fundamental goal of ACOs is to provide quality care to the populations they serve by emphasizing preventive care, coordinating care across levels of the health care system, and involving patients and their families in promoting health. Thus, Region 4 states may be in a position to benefit from ACO practices.

Implications for management

Current Region 4 RHC Participation in ACOs—In summary, the study findings indicate that several demographic characteristics may deter the participation in ACOs in

Region 4. However, a review of the development of Medicare ACOs in the region (without taking into account the growth of commercial or Medicaid ACOs in the region) suggests that this speculation has not borne out. During the period from April of 2012 through January of 2014, there was a 717% average overall percent growth in Medicare Shared Savings Program (MSSP) ACOs serving Region 4. Starting with 11 MSSP ACOs in April of 2012, there were 110 serving the area in 2014.

While ACO growth is high in Region 4, the participation of Region 4 RHCs in ACOs is low thus far. As of January of 2015, 58 Region 4 RHCs were members of MSSP ACOs, accounting for approximately 6.1% of the total number of Region 4 RHCs.¹⁵ Of these, the majority (60.3%) are Independent RHCs.

Region 4 is composed of approximately 61 million residents, of which about one-third live in rural areas. For some of its states – Alabama, Kentucky, and Mississippi – rural residents make up about half of the population. Although it remains to be seen to what extent RHCs and their patients will be served by ACOs, rural populations cannot be ignored by this new model of health care delivery.

Limitations and future research

This study intended to point out some interesting characteristics of Rural Health Clinics, the relationships between those characteristics, and their implications for ACO participation. It was not intended as a comprehensive study of RHC characteristics, nor to prove associations between those characteristics. Future research will examine statistically significant relationships between RHC characteristics and ACO participation.

Conclusion

This paper compared the characteristics of Rural Health Clinics and the populations they serve across ten regions of the U.S. Although several characteristics of Southeastern RHCs and the populations they serve do not facilitate ACO participation, others lend themselves to ACO participation. Whether RHCs choose to participate in ACOs or not, addressing the healthcare needs of rural populations must be part of the design, development, and performance monitoring of ACOs of the future.

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Appendix

Variables and Operational Definitions

Variable	Operational Definition
RHC Classification	
Provider-based	RHC is operated by a hospital, nursing home, or home health agency (1 = provider-based, 0 = independent)
Context	
Median Income (Medinc)	Median household income of the county where RHC is located
Percentage Older (Per65)	Percentage of the population that is Medicare eligible (age ≥ 65 yrs)
Percentage in Poverty (Perpov)	Percentage of population that is in poverty (in the RHC county of location)
Physicians per Population (Physpop)	Number of GP + FP + DO physicians per 1,000 population (in the RHC county of location)
Wage	Weighted median wage for FPs + PAs for county where RHC is located
Design	
Ownership	For-profit, non-profit, and government
Age	Number of years Medicare/Medicaid certified as of the study year
Total FTEs	Number of physicians, PAs and NPs FTEs
Proportion of NPs	Number of NPs FTEs 2007/(total FTEs for Physicians + PAs + NPs)
Proportion of PAs	Number of PAs FTEs 2007/(total FTEs for Physicians + PAs + NPs)
Proportion of Physicians	Number of Physicians/(total number for Physicians + NPs + PAs)
Percentage NPs	Number of Physicians/(total number for Physicians + NPs + PAs)
Percentage PAs	Number of Physicians/(total number for Physicians + NPs + PAs)
Productivity outcomes	
Visits per Physicians FTEs (Physvis_FTE)	Number of Physician visits/number of Physician FTEs
Visits per PAs FTEs (PAvis_FTE)	Number of PA Visits/number of PAs FTEs
Visits per NPs FTEs (NPvis_FTE)	Number of NP Visits/number of NPs FTEs
Quality of care and patient outcomes	
Prevention of chronic conditions (diabetes/CHF)	Number of pneumonia and influenza immunizations (as % of all Medicare claims)
Ambulatory care sensitive condition (ACSC) rates (diabetes/CHF)	Number of inpatient Medicare claims by RHC patients related to diabetes/CHF

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Figure 1.

The U.S Department of Health and Human Services (DHHS) Region 4 Source: Blank US map. 50states.com, 1996. Available at <http://www.50states.com/maps/usamap.htm>.

Figure 2. RHC Classification by Region

Table 1

Correlates of Productivity and Patient Outcomes

	Medine	Per65	Perpov	Physpop	Perfem	Wage06	Wage07	Physvis_FTE07	PAvis_FTE07	NPvis_FTE07
Medine	Pearson Correlation	1								
	Sig. (2-tailed)									
	N	425								
Per65	Pearson Correlation	.192**	1							
	Sig. (2-tailed)	6.74E-05								
	N	425	425							
Perpov	Pearson Correlation	-.865**	1							
	Sig. (2-tailed)	1.9E-128	4.03E-09							
	N	425	425	425						
Physpop	Pearson Correlation	.242**	.540**	1						
	Sig. (2-tailed)	4.4E-07	1.76E-33	0.001508						
	N	425	425	425	425					
Perfem	Pearson Correlation	-.06708	.136**	.035128	1					
	Sig. (2-tailed)	0.167462	0.004882	0.470128	0.000597					
	N	425	425	425	425	425				
Wage06	Pearson Correlation	-.05424	-.01137	0.091353	.142**	1				
	Sig. (2-tailed)	0.26457	0.815274	0.059881	0.003346					
	N	425	425	425	425	425				
Wage07	Pearson Correlation	-.0813	-.02955	.132**	.161**	.941**	1			
	Sig. (2-tailed)	0.094156	0.543541	0.006531	0.000878	9.6E-201				
	N	425	425	425	425	425	425			
Physvis_FTE07	Pearson Correlation	0.052077	-.01399	-.02534	0.01682	0.036689	0.019709	0.029509	1	
	Sig. (2-tailed)	0.284097	0.773709	0.602402	0.729532	0.450614	0.685366	0.544064		
	N	425	425	425	425	425	425	425	425	
PAvis_FTE07	Pearson Correlation	.098*	-.04394	-.05657	-.01824	-.03962	-.03763	-.001638346		1
	Sig. (2-tailed)	0.043366	0.366171	0.244529	0.707674	0.593496	0.415217	0.973135584		
	N	425	425	425	425	425	425	425	425	425

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	Medine	Per65	Perpov	Physpop	Perfem	Wage06	Wage07	Physvis_FTE07	PAvis_FTE07	NPvis_FTE07
Pearson Correlation	-0.01731	-0.02563	0.029141	0.030606	0.090373	.102 *	.104 *	.602 **	-0.062382218	1
Sig. (2-tailed)	0.721983	0.598306	0.549092	0.529186	0.062685	0.034711	0.032748	2.92568E-43	0.199315162	
N	425	425	425	425	425	425	425	425	425	425

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).