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Long-Term Care: An Analysis of Quality By Rurality in Illinois Nursing Homes

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LONG-TERM CARE: AN ANALYSIS OF QUALITY BY RURALITY IN ILLINOIS NURSING HOMES

by

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The purpose of this study was to compare the quality of care rating for long-term care facilities in rural versus urban Illinois locations. Using quality of care data available on medicare.gov, 774 Illinois long-term care facilities were compared to determine if a difference in quality of care existed based on rurality. Each facility was classified as either urban focused, large rural city/town (micropolitan) focused, small rural town focused, or isolated small rural town focused using the Rural Urban Commuting Area (RUCA) codes provided by the Rural Health Research Center. Frequencies, ANOVA, and Scheffe tests were used to analyze the data. Significant differences were found between urban focused and small rural town focused long-term care facilities and also between urban focused and isolated small rural town focused in regards to inspection ratings. Significant differences were also found for general quality ratings between urban focused and large rural city/town (micropolitan) focused, small rural town focused, and isolated small rural town focused long-term care facilities. Urban focused locations had a mean inspection average of 2.72 stars out of a possible five compared to small rural town focused facilities that had a mean rating of 3.21 stars, and isolated small rural

town focused facilities that had a 3.33 star average. Results also showed that general quality ratings were high, an average of 3.81 stars, for urban focused facilities, compared to an average of 2.84 stars for micropolitan facilities, 2.82 stars for small rural town focused, and 3.03 for isolated small rural town focused. Findings from this study offer some initial evidence that while overall quality in Illinois long-term care facilities are not significantly different on the basis of rurality, there are significant differences in inspection ratings and general quality ratings that could be attributed to degrees of rurality.

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Introduction

As the baby boomer generation, born between 1946 and 1964, enters into retirement age, the United States health care industry faces a unique challenge in the next decade to respond to the needs of this cohort. By 2030, 70 million people representing 20 percent of the U.S. population will be over the age of 65 (Older Americans 2000). This is an increase from 4 percent of the population in 1900. This population surge will create the need for additional healthcare services in order to provide the necessary care an aging population requires in the future, but presently, creates a demand for research and development to address the emerging issues. While research considering access to care, independence, and insurance are important factors, this paper will focus on measures of quality of health care delivery in long-term care settings.

As with any social policy, identifying discrepancies among underserved and underprivileged populations is of great importance. Almost 22 percent of the elderly population in the U.S. reside in rural areas (U.S. Census Bureau), nearly 40% of 17,000 U.S. nursing homes are located in rural areas (Towsley et al. 2006), and the elderly population makes up a greater proportion of rural communities than do their urban counterparts (U.S. Census Bureau). Compounded, these factors pose a unique area of interest to researchers, as both substantial literature and antidotal evidence exists regarding rural long-term care. This paper seeks to add to the body of literature regarding discrepancies in healthcare quality between rural and urban providers of long-term care.

Purpose of research

The purpose of this research is two-fold; first, this article seeks to examine the current literature regarding rural long-term care populations and what factors play a role in quality healthcare delivery. Specific attention was paid to differences in rural health care quality versus urban counterparts. Building upon this body of literature, the article quantitatively analyzes Medicare quality reports to determine if a difference exists in long-term care quality between urban and rural Illinois facilities in an effort to further the body of literature encompassing this area of interest.

Nursing Home Industry in Illinois

12.7 percent, or 1,629,490 people, of Illinois' population is age 65 and over (Census 2010). While this is under the national average of 13.3 percent, this growing demographic represents a significant portion of the Illinois population. According to the American Health Care Association (2012), the state of Illinois has 775 nursing facilities (NFs) with a total of 99,804 nursing facility beds to serve the aging population. It is important to note that there are three categories of NFs that provide health care services in Illinois. These are categorized based on the type of facility and how they are operated. Of all nursing facilities in Illinois, 49.3 percent are multifacilities offering several services under one roof, 50.7 percent are independent operating as a self-contained health care provider, and 5.8 percent are hospital-based where long-term care is provided as a service of the hospital itself. There is also a difference between NFs based on how payment for services rendered is determined; 71.1 percent of NFs in Illinois are for-profit, 25 percent are nonprofit, 3.9 percent are government owned, and

85.4 percent are certified through Medicare and Medicaid. As of December 2012, there was a median facility occupancy rate of 77.3% in the state of Illinois. With a growing aging population, it will be pertinent to consider facility occupancy rates in order to ensure adequate access to long-term health care.

Literature Review

As America ages into a larger proportion of elderly individuals, the pressure this shift will place on the healthcare industry will be great. While there are many general concerns, rural long-term care is of special importance because the aging population is more concentrated in rural areas than urban areas (Hutchison et al. 2010). Already, changes in health care financing, technology, and a shift towards health care systems and networks has drastically affected rural health care. These changes have themselves created new issues for rural health care including shortages of physicians, lack of infrastructure, and financial pressure (Ricketts 2000). These challenges lead into the focus of this paper, which outlines the dynamic context of long-term care in rural areas.

Central to the study of long-term health care in rural settings is an understanding of the unique factors which rural healthcare professionals operate under and the population they serve. The research and body of literature on rural long-term care is minimal, and there are few studies that have investigated rural-urban discrepancies in nursing home use, availability, accessibility, quality, and cost in rural locations (Coburn 2008). What does exist in the current literature gravitates to six factors influencing rural

long-term care which will be further discussed in detail: population trends, income and poverty levels, access to care, healthcare policy, nursing home use, and quality.

Population Trends

As the United States age demographic distribution changes to include an increasing number of elderly individuals, it is important to gain an understanding of how this population is geographically distributed in order to accurately investigate and apply new theories and policy changes (Phillips 2004). According to Hutchinson (2005), rural elderly are older and account for a larger percentage of the population than urban elderly. In 2000, 5.6 percent of urban populations were aged 75 years or older compared to 7.4 percent (one third higher than urban areas) in isolated rural areas. This difference has resulted in a higher rate of nursing home use in rural locations, amounting to over 560,000 nursing home residents in rural locations (Phillips 2004).

In Illinois, population changes in age distribution demonstrate the growing need to address an aging population. According to the Illinois Institute for Rural Affairs, the average age of county populations increased by 8.3 percent in rural counties compared to the state average of 4.6 percent. Interestingly, the growth of elderly populations were higher in metro counties compared to rural counterparts. This could be due to better access to health care facilities, but it is difficult to separate trends of those who stay to "age in place" and those that migrate for better services (iira.gov).

Income and Poverty Level

The rural elderly population is also defined by differences in income and poverty levels that affect access to healthcare. Rural elderly are more likely to be classified as "poor" or "low income" compared to their urban counterparts. This one factor alone represents an important issue to rural elderly as new health care policies are created that may create greater financial pressure on the rural population (Coburn 2008). If rural elderly are not able to qualify for Medicaid or other assistance programs, the cost of long-term care must be absorbed through their own resources, which can force individuals into bankruptcy or make access to long-term care inaccessible (Hutchison et al. 2010).

In Illinois, 13.9 percent of males ages 65 and over live in poverty while 20.9 percent of females ages 65 and over are classified as living in poverty (Baer, 2008). As described by Patrick et al. (1988), poverty becomes a function of heightened health care needs which demand greater access to services. Addressed in the following section of this paper, access to services already exists as a factor influencing rural health care, a reality perpetuated by income status.

Access to Care

Health care access in rural communities has been shown to differ from urban areas based on decreased availability and accessibility to health professionals and services in rural areas. Further, the limited access to healthcare is impacted by several factors including less access to transportation, fewer physician visits, limited income,

and variations in health insurance (Coburn 2008). Pertinent to an understanding of long-term care trends, Hutchinson (2010) has shown that rural elderly are less likely to have access to formal alternatives to nursing home care. This results in rural elderly who use, often preferred, in-home services less often than urban elderly (Coburn 2008). This trend is thought to be because there is less availability of in-home services in rural communities that force the aged to utilize long-term care facilities at a higher rate (Greene 1984). This limited access to in-home services and alternative health care providers has made nursing homes particularly important in rural areas (Hutchison et al. 2010). New trends in health care policy are changing access to health care, but the impact these changes will have on rural areas is not widely known (Coburn 2008).

Healthcare Policy

Quality of healthcare services in long-term care facilities has been a great concern for policy makers since the mid-1970s. The Nursing Home Reform Act of 1987 significantly expanded the quality monitoring of the state and federal governments. According to Vladeck (1980), investigative reports and state-specific studies in the 1970s informed the public of rampant inadequate care in nursing homes. Additionally, a 1986 report by the Institute of Medicine called for widespread change in nursing home quality assurance. As a result, in 1987 the federal Nursing Home Reform Act of 1987 was passed, incorporating many of the recommendations made by the IOM report (Coburn 1996). This law specifies that a nursing home "must provide services and activities to attain or maintain the highest practicable physical, mental and psychosocial well-being of each resident in accordance with a written plan of care". The law was designed so that a nursing home wishing to participate in the Medicare or Medicaid

program must comply with the federal guidelines delineated in the law. These guidelines have created many of the standards by which we determine "quality" care including sufficient staff patient ratio, prevention of pressure sores, appropriate distribution of medication, provision of assistive devices to prevent falls, promotion of each resident's quality of life, establishment of a certification process, and unannounced site visits and inspections (Klauber 2001).

Nursing Home Use

While the general characteristics of NFs in Illinois have previously been described, there is a need to look at specific trends in rural NFs use. In general, rural elderly are more likely to be admitted to a skilled nursing facility than their urban counterparts, but these differences are not fully understood using typical factors such as socio-demographic and health characteristics. Instead, supply of long-term care services, attitudes of the rural elderly toward nursing homes, and the availability of community and in home care options are thought to affect this generalized trend (Coburn 2008). Long-term care in many rural areas has been characterized by a greater supply and use of nursing home beds and fewer options for home and community-based care services (Coburn 2008). Coburn examined what is known about the availability and use of long-term care services in rural populations and found that the use of nursing homes is nearly 43% greater in nonmetropolitan than metropolitan areas.

More recently, changing trends show a decline in nursing home usage as the market demonstrates lower nursing home occupancy rates, a movement towards in-home care options, changes in services offered at nursing homes, and decreased Medicare and Medicaid reimbursement policies. Whether the trend of decreased NF

use is occurring in rural locations, in light of the factors discussed, such as access to at-home services, attitudes, or availability of options, is still a question for debate.

Quality

Throughout the literature quality of care in long-term care facilities is referenced as a national issue, yet the research in comparing rural-urban disparities is lacking. As Coburn (2008) states, "Understanding more about whether and how quality of care may vary among urban and rural residents and facilities is particularly important because nursing facilities (NFs) are the dominant providers of long-term care services in many rural areas". Quality of care in rural locations can be impacted by several factors including higher proportional elderly populations, more severe levels of impairment upon admission, a lack of in-home services, shortage of skilled health professionals, and the approach to care taken by the staff on a daily basis (Coburn 1996).

Whether differences in quality of care in rural versus urban locations exists is still questionable. Most researchers have focused on other issues around rural health care including access and utilization rather than quality. Recently an interest in quality differences has produced a few studies related to the topic, including a study comparing feeding tube use in urban and rural homes in 1 state, data on multiple hospitalizations from 6 states, and a general analysis of quality indicators in a single state (Phillips 2004).The limited amount of studies conducted in investigating quality disparities have resulted in contradictory outcomes, with several pointing to lower quality among rural health care, some finding no differences, others indicating factors in rural care that are

of higher quality than urban areas, and additional studies that resulted in positive and negative relationships between quality and rurality.

Coburn (2008) states that research measures that emphasize "technical" quality, such as staff to patient ratio, occurance of bed sores, etc., often result in rural nursing home services rating more poorly, especially if they have limited capacity for specialized care. Similar results supporting this conclusion have been found, including a study in the U.S. that found that rural patients were more likely to reside in facilities without accreditations or special care programs - indicators that they were more likely to receive poorer care (Kang 2004). Many researchers have found that rural nursing homes have lower quality than their urban counterparts after adjusting for case-mix (Buchanan et al. 2004, Bolin et al. 2006, Kang et al 2011, Temkin-Greener et al. 2012, Phillips 2004). Others have also pointed to that fact that rural and non-teaching hospitals have lower quality, but emphasize that the overall body of literature is still small (Ricketts 2000).

Hutchinson et al. (2005) documented that rural nursing homes tend to have few beds, lower staffing levels, and are less likely to offer specialized care. Additionally, their payer mix, typically Medicare and Medicaid heavy, hinders their ability to secure resources. As Mor et al. (2004) discussed, Medicaid reimbursement rates have been correlated with quality because NFs with a higher rate of Medicaid use have a harder time securing the needed resources to provide quality care.

Coburn et al. (1997) conducted a study that showed that rural patients admitted to nursing facilities for hip fractures were less likely than their urban counterparts to be discharged between 30 and 120 days. They also conducted a study for residents that

experienced multiple nursing-home to hospital transfers. They found that rural residents were more likely to get "stuck" in nursing homes, meaning rural patients that were admitted to a NF, even temporarily, are more likely to remain in a NF than their urban counterparts. They were also more likely to experience multiple hospitalizations, but they were not able to determine a clear reason.

Bowblis et al. (2013) conducted a study to quantify the sources of differences in quality between rural and urban nursing homes. They found that rural nursing homes have higher contracture (abnormal muscle shortening and joint fixation) rates than urban nursing homes. They were able to quantifiably attribute 50 percent of the rural-urban disparity by observable characteristics, 5 percent by staffing levels, 6-8 percent by case-mix, 10-22 percent by operational characteristics. This research provides evidence that the quality of care in NFs is not a result of any one factor, but rather can be attributed to any number of situational characteristics, making it difficult to devise a uniformed answer to quality-improvement initiatives.

Other research has found no measurable differences between rural and urban quality of care. As Coburn (1996) states, "there is scant evidence of rural-urban differences in the quality of nursing home or other services." A 1994 assessment conducted by Coburn looked at the differences in conditions and outcomes of care between urban and rural NFs in Maine using multiple care measures while controlling for resident and facility characteristics and other factors that may affect quality. This study to compare quality of care in rural and urban nursing facilities found no significant differences among rural and urban homes on the 11 quality indicators used. While these

results are interesting to the conversation of urban-rural quality of care, the author cautioned that a single state study was inadequate for understanding quality differences across the country and urged further research (Coburn 1996).

Of even greater interest to the rural-urban quality discrepancy, other research by Congdon & Magilvy (1998) shows that rural nursing homes typically have staff that are more familiar with residents who can provide care that rates more highly with patients on scales that measure satisfaction or quality of life. This conclusion was the result of a comparison to larger urban nursing homes, which are often perceived as lacking a personal community feel. Additionally, a study conducted by Phillips et al. (2004) found that the occurrence of bed sores, an indicator of quality of care, decreased in prevalence as degree of rurality increased.

Offering the most generalizable study to date, Philips (2004) examined differences in quality of care among nursing homes that are rural compared to urban on a basis of 4 classes of rurality. The researchers analyzed 10 percent of U.S. nursing home admissions in 2000. Hypothesizing that there would be minimal differences between urban and rural locations and quality of care, the results proved to be beneficial to the current body of literature. Philips (2004) found both negative and positive relationships between quality of care and rurality, contrary to his hypothesis that there would be insignificant differences among the comparison groups. These results confirm the general consensus among professionals in the field - quality of care is not definable or measurable by one characteristic. Rather, it is effected by a series of factors that compoundly affect quality of care. Research projects such as this one conducted by Philips, and the work conducted for the purpose of this paper, contribute

data that can be useful to government bodies in developing nursing home quality indicators and policy.

Data Source

The data used in this research was a combination of three sources. Quality measures came from the Centers for Medicare & Medicaid Services (CMS) Health Inspection database and the National Minimum Data Set (MDS), while the categorization of each long-term care facility into rural/urban classifications was obtained through the Rural Urban Commuting Areas (RUCA) codes developed by the Rural Health Research Center.

The Health Inspection database, from which the quality measures were obtained, includes the nursing home characteristics and health deficiencies issued during the three most recent state inspections and recent complaint investigations. Accessed on the Medicare.gov website, the quality measures utilize a five-star quality rating system to portray quality of services to the public when investigating Medicare and Medicaid supported nursing homes. The rating system is composed of three specific indicators (health inspections, quality measures, and staffing) and one overall 5-star rating based on a composite of the three specific indicators previously memntioned.

The health inspection rating represents the results of a facility's past three years inspections and includes both standard surveys and complaint surveys. The staffing rating represents an average number of hours of care provided by Registered Nurses, Licensed Practical Nurses/Licensed Vocational Nurses, and Certified Nursing Assistants The quality measure rating represents a composite portrayal of 9 different physical and clinical measures of residents' health including prevalence of bed sores or changes in

mobility. A fourth rating, the overall 5-star rating, is calculated as an average of the three indicators to give an overall representation of nursing home quality. For further information on how the 5-star ratings are calculated, please see Appendix A.

In order to compare nursing home quality on a rural/urban continuum, Rural Urban Commuting Areas (RUCA) codes were utilized for each nursing home location. According to the Rural Health Research Center website, RUCA codes were created based on the census tract codes. Determined by the Rural Urban Community Centers, RUCA codes are based on urbanization, population, and daily commuting distance (Economic Research Service, 2004). The use of this methodology is supported by the literature, in which similar endeavors were undertaken using RUCA codes to determine rural and urban areas (Towsley et al. 2006; Bowblis et al., 2012).

Methodology

Utilizing the medicare.gov website's *Nursing Home Compare* database, a search for nursing homes located in the state of Illinois resulted in 774 search results. Each nursing home was entered into SPSS followed by numerated entries for each of the four dependent variables: quality measures, staffing, inspections, and overall 5-star rating. In order to determine degree of rurality/urbanization (the independent variable) RUCA data was recorded for each entry based on the zip code listed on *Nursing Home Compare*.

According to the Rural Health Research Center's suggestion to aggregate the data, Categorization "A" was used to compress the RUCA coding. This allowed for the systematic assignment of each nursing home to one of four categorizations on a rural/urban continuum. Categorization A combines the zip codes into four options of

either urban focused, large rural/town (micropolitan) focused, small rural town focused, and isolated small rural town focused. The use of the four-category system captures the differences in locations better than the standard dichotomy of rural versus urban, allows for finer distinction, and provides greater specificity to the data analysis.

Data Analysis

The data was analyzed using SPSS version 20.0. Quality indicators were assessed using frequencies while an analysis of the group means were measured using a one-way analysis of variance (ANOVA) statistical model. The alpha level was set at 0.05.

The data was entered into SPSS and edited to remove incomplete data. Following this step, the long-term care facilities were sorted into each of the four condensed categories as determined by the RUCA codes. Averages were calculated for each of the four dependent variables to present a composite representation of long-term care facilities' quality measures, staffing, inspections, and overall 5-star rating.

Results

A total of 774 long-term care facilities were identified in the state of Illinois. Of the facilities listed, six were not usable for the overall 5-star rating and inspection variables because there was no reported rating, leaving a total sample of n = 768. For the staffing variable, 54 facilities were eliminated due to no reported rating, leaving a total sample of n = 720. Finally, for the quality measures variable, 8 facilities were not included due to

no reported rating, resulting in a total sample of n = 764. Of those long-term care facilities with complete ratings (n = 768), 66.7 percent were classified as urban focused, 13.2 percent were classified as large rural town (micropolitan) focused, 15.5 percent were classified as small rural town focused, and 4.7 percent were classified as isolated small rural town focused.

Table 1: Frequencies

RURALITY		OVERALL	INSPECT	STAFF	QUALITY
Urban focused	Mean	3.22	2.72	3.18	3.81
	N	512	512	473	509
	Std. Deviation	1.325	1.240	1.325	1.088
Large rural/town (micropolitan) focused	Mean	3.12	3.00	3.16	2.84
	N	101	101	97	100
	Std. Deviation	1.380	1.273	1.247	1.346
Small rural town focused	Mean	3.22	3.21	3.02	2.84
	N	119	119	115	119
	Std. Deviation	1.270	1.314	1.207	1.186
Isolated small rural town focused	Mean	3.47	3.33	3.29	3.03
	N	36	36	35	36
	Std. Deviation	1.320	1.242	1.126	1.158
Total	Mean	3.22	2.86	3.16	3.49
	N	768	768	720	764
	Std. Deviation	1.323	1.272	1.286	1.225

*shaded cells indicate those averages that are significant according to ANOVA and Scheffe Test

As seen in Table 1, the mean score for urban-focused long-term care facilities for the overall 5-star rating is 3.22, 2.72 for the inspection rating, 3.18 for the staffing rating, and 3.81 for quality measures. For large rural/town (micropolitan) focused, the means were 3.12 for the overall 5-star rating, 3.00 for the inspection rating, 3.16 for the staffing

rating, and 2.84 for the quality measures. Small rural town focused long-term care facilities had a mean of 3.22 for the overall 5-star rating, 3.21 for the inspection rating, 3.02 for the staffing rating, and 2.84 for the quality measures. Lastly, isolated small town rural facilities had means of 3.47 for the overall 5-star rating, 3.33 for the inspection rating, 3.29 for the staffing rating, and 3.03 for the quality measures.

Table 2: ANOVA Results: Significance Between Locations for each Quality Indicator

		Sum of Squares	df	Mean Square	F	Sig.
OVERALL	Between Locations	3.334	3	1.111	.634	.593
	Within Locations	1339.036	764	1.753		
	Total	1342.370	767			
INSPECT	Between Locations	35.129	3	11.710	7.420	.000
	Within Locations	1205.683	764	1.578		
	Total	1240.813	767			
STAFF	Between Locations	3.117	3	1.039	.627	.598
	Within Locations	1186.833	716	1.658		
	Total	1189.950	719			
QUALITY	Between Locations	151.457	3	50.486	38.620	.000
	Within Locations	993.510	760	1.307		
	Total	1144.967	763			

An Analysis of Variance (ANOVA) was used to compare the means of the levels of the independent variable, the results of which are presented in Table 2. In this instance, the independent variable, degree of rurality/urbanization, was separated into four levels creating a between-groups design. Examining the results, one can see that for the overall 5-star rating, $F(3, 3.334) = .634$, $p > .05$, indicates there were no significant differences between the degrees of rurality/urbanization categories. When comparing the overall 5-star rating one accepts the null hypothesis that within the

population, all categorizations of rurality/urbanization have equal mean quality scores. The results were similar for the staffing rating ($F(3, 3.117) = .627$, $p > .05$), indicating no significant difference based on degree of rurality/urbanization resulting in the acceptance of the null hypothesis. The results differed, however, when examining both inspection ratings ($F(3, 35.129) = 7.420$, $p < .05$) and quality measures ratings ($F(3, 151.457) = 38.620$, $p < .05$) which indicated significant differences between the inspection and quality measures. each rating on the basis of rurality/urbanization. These results enable the rejection of the null hypothesis and allows for acceptance of the alternative hypothesis that states that within the population, there is some degree of difference among categorizations of rurality/urbanization mean quality scores. And mean inspection scores.

The ANOVA results only allow us to conclude that the comparison groups (inspection rating and quality measures rating) differ in some way, but it is not evident which of the rurality/urbanization categories are significantly different from each other. In order to determine where the significant differences occurred in the inspection and quality measures ratings, a Scheffe test was performed.

Table 3: Scheffe Test Results – Inspection Rating

Dependent Variable	(I) RURALITY	(J) RURALITY	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
INSPECT	Urban focused	micropolitan	-.283	.137	.233	-.67	.10
		small rural town focused	-.493*	.128	.002	-.85	-.14
		isolated small rural town focused	-.617*	.217	.045	-1.22	-.01
	micropolitan	Urban focused	.283	.137	.233	-.10	.67
		small rural town focused	-.210	.170	.676	-.69	.27
		isolated small rural town focused	-.333	.244	.600	-1.02	.35
	small rural town focused	Urban focused	.493*	.128	.002	.14	.85
		micropolitan	.210	.170	.676	-.27	.69
		isolated small rural town focused	-.123	.239	.966	-.79	.55
	isolated small rural town focused	Urban focused	.617*	.217	.045	.01	1.22
		micropolitan	.333	.244	.600	-.35	1.02
		small rural town focused	.123	.239	.966	-.55	.79

Table 4: Scheffe Test Results – Quality Measures

Dependent Variable	(I) RURALITY	(J) RURALITY	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
QUALITY	Urban focused	micropolitan	.967*	.125	.000	.62	1.32
		small rural town focused	.967*	.116	.000	.64	1.29
		isolated small rural town focused	.780*	.197	.001	.23	1.33
	micropolitan	Urban focused	-.967*	.125	.000	-1.32	-.62
		small rural town focused	.000	.155	1.000	-.43	.43
		isolated small rural town focused	-.188	.222	.870	-.81	.43
	small rural town focused	Urban focused	-.967*	.116	.000	-1.29	-.64
		micropolitan	.000	.155	1.000	-.43	.43
		isolated small rural town focused	-.187	.217	.863	-.80	.42
	isolated small rural town focused	Urban focused	-.780*	.197	.001	-1.33	-.23
		micropolitan	.188	.222	.870	-.43	.81
		small rural town focused	.187	.217	.863	-.42	.80

In regards to inspection ratings, significant differences were found between urban focused and small rural town focused long-term care facilities and also between urban focused and isolated small rural town focused (Table 4). Additionally, significant differences were found for the quality measures ratings between urban focused and large rural city/town (micropolitan) focused, small rural town focused, and isolated small rural town focused long-term care facilities (Table 6).

Urban focused locations only had a mean inspection average of 2.72 stars out of a possible five compared to small rural town focused facilities that had a mean rating of 3.21 stars, and isolated small rural town focused facilities that had a 3.33 star average. Based on the results of the Scheffe tests, which affirm that the differences in the averages are significant, it can be concluded that small rural town focused and isolated small rural/town focused facilities have significantly better inspection results than urban focused facilities. In contrast, quality measures ratings were high, an average of 3.81 stars, for urban focused facilities, compared to an average of 2.84 stars for micropolitan

facilities, 2.82 stars for small rural town focused, and 3.03 for isolated small rural town focused. Findings from this study offer some initial evidence that while, generally speaking, overall quality in Illinois long-term care facilities are not significantly different on the basis of rurality, there are significant differences in inspection ratings and quality measures ratings that could be attributed to differences in location.

D**iscussion**

The results of this study indicate that while overall quality and staffing ratings of long-term care facilities are not significantly different based on a rural/urban continuum, significant differences do exist in the ratings for inspections and quality measures based on location. The population for this study was exclusively located within Illinois, therefore, care should be taken in generalizing the results to a broader pool of facilities. Given that the procedures for inspections of long-term care facilities vary by state, and that the quality measures are linked directly to the results of inspections, any generalizations should be limited.

Investigating how rural versus urban long-term care facilities perform on published quality indicators has become an important issue to address as the healthcare industry adjusts to a growing senior population and their new demands. A study of this nature is of value within the state of Illinois because research into rural nursing facilities can add to a body of knowledge that could aid in policy making decisions affecting a diverse state economy between urbanized northern Illinois and rural central and southern Illinois.

While the results of this research suggest that there are significant discrepancies in the inspection ratings and quality measures of long-term care facilities, we must ask ourselves what accounts for these variations. The literature indicates that there are various factors that pose challenges to the long-term care industry. Certain factors that impact quality of care, such as healthcare policy, nursing home use, and access to care, have the potential to directly or indirectly affect the quality measures and inspection ratings that were determined to be significantly different. Alternatively, the differences could potentially be attributed to the manner in which the long-term care facilities' data are collected. Inconsistencies among inspectors and variations in interpretation of regulatory policies could potentially impact the results of the inspection rating. Similarly, differences in the quality measures could be a result of the population of patients on which the quality measures were based, the reporting protocol for patient injuries could vary by location, and record keeping could be impacted by the amount of resources available to facilities in the form of electronic systems. Other factors may be involved in the perceived difference in ratings based on location, including the community approach to providing healthcare services and personal relationships between caregivers and families/patients that can influence how care is provided. The impact of these potential factors is not clear, but further research into their influence on overall quality could reveal an interesting dynamic.

Suggestions for Improvement

This exploratory study adds to a limited body of knowledge that attempts to examine a relationship between rural and urban location as a factor in quality of care in

long-term care facilities. The results illuminate significant differences in the ratings for quality measures and inspections in the state of Illinois. In an effort to dispel any potential discrepancies on the basis of rurality/urbanization, there are several proactive steps that can be taken to equalize the long-term care industry.

First the availability, organization and use of health and long-term care services in rural areas can be addressed. The role of the rural long-term care facility is changing as more seniors utilize services and depend on them as their sole provider of care. Often, this is a result of the fact that residential care services are limited in rural locations, forcing a disproportionate number of seniors to use long-term care facilities. By providing health care options that extend beyond a long-term care facility, improvements can be made to ensure that those utilizing long-term care facilities are there because their health care needs necessitate it, not necessarily because it is their only option.

Secondly, The availability and retention of well-trained, competitive health professionals is limited in rural areas. To improve quality of care, the recruitment of specialized health care providers should be addressed and expanded. Possible solutions to this shortage could be the integration of telemedicine in rural locations and also the development of network providers in order to reduce costs while increasing incentives for practicing healthcare providers.

Thirdly, the current effects of Medicaid and Medicare policy on the rural long-term care system could be examined. Steps are underway through the Affordable Healthcare

Act, but the specific impact the new law will have on quality of care in rural locations is not available.

Lastly, a review of the policies, procedures, and methods of evaluation set forth for long-term care facility certification by the State of Illinois could be evaluated. The current method of inspection occurs at an average rate of one inspection per year, and while the basic standards are strong, the method by which they are performed is questionable and vary by state. Heightened monitoring could prove valuable in ensuring a higher level of quality of care.

Conclusion

If the state of Illinois is to continue to provide quality care for all of their stakeholders, there needs to be an examination of the policies set forth in selecting and operating long-term care facilities. This is a daunting task, as healthcare standards are regulated on a federal level through the Department of Health and Human Services, and also on local state regulations. As we move forward in the health care industry, past issues surrounding access, cost, and policy remain of great importance, but additionally quality of care must be considered if we are to adequately address the issues of an aging population. Following this study, questions surrounding quality measurement strategies, barriers to providing effective and efficient care in rural locations, and the extent to which state and federal regulations impact the delivery of care remain a high priority. Focusing within Illinois, examination of the structure of our healthcare system, the process by which healthcare is delivered , and the quality of outcomes will result in a better understanding of our current standing and will help to ensure that the care

provided to some of the most vulnerable populations is of a quality standard acceptable for all.

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