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Michelle Emery Blake MSSW, Ph.D.
University of Evansville

Erin M. Fordyce
University of Evansville

Hanns G. Pieper
University of Evansville

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A Comparison of Nursing Homes in Rural and Urban Communities in Indiana

Michelle Emery Blake, Erin M. Fordyce, and Hanns G. Pieper
University of Evansville

Abstract. *The growing number of elderly persons in U.S. society—the "Graying of America"—increases the urgency of making available the resources needed to ensure optimum quality of life for all seniors. When families are no longer able to meet their loved one's needs, it becomes necessary to consider the possibility of long-term care. Often, families face this decision without the information they need in order to make an informed choice. The researchers utilized a four-tiered categorization to compare nursing homes in most rural, rural, urban and most urban counties in Indiana. The Medicare website (http://www.medicare.gov/) addresses issues of staffing, number of Medicare/Medicaid beds, and quality ratings. The authors discussed implications for elderly residents of rural counties in Indiana and encouraged further research to determine the extent to which their findings may be generalized to the continental U.S.*

Keywords: long-term care, quality of care, rural elderly

One of the challenges faced by social service providers in rural communities is the availability of quality resource referrals. For those working in gerontological or health care settings, this may mean assisting clients and their families in the selection of long-term care facilities. Many families are understandably concerned about the level of care and quality of life in available facilities.

The present study, supported by the University of Evansville Gerontology Resource Center, was designed for the purposes of examining the general quality of long-term care available in the state of Indiana and for comparing differences between facilities located in rural and urban counties. The preliminary review of literature suggested that rural facilities were confronted with a special set of challenges which could adversely affect the quality of care. However, our findings suggest that—at least in Indiana—the reverse may be true. While the data from which our analysis was conducted do not offer causative explanations, they do allow for comparison across such factors as: (a) overall quality of care; (b) staffing; (c) health inspections, and the frequency and severity of any violations; (d) number of beds; (e) ownership; (f) participation in Medicare and Medicaid; (g) emotional well-being of residents; and (h) physical care as measured by rates of pressure sores, urinary tract infections, and the use of physical restraints.

Our purpose was not to assess the quality of individual homes. Rather, the study compared aggregate information by county groups designated most rural, rural, urban, and most urban using the protocol described later in this paper. From this we were able to consider possible correlations between geographic location and quality of care.

Review of Literature

Any discussion of gerontological healthcare in rural communities should be grounded in recognition of the trend for disproportionately high rates of elderly persons to reside in these areas. The availability of and access to resources are potential issues, as well as distance from younger family members, who may have left the community for employment or other reasons (Averill, 2003; Folts, Muir, & Nash, 2005; Kang, Meng, & Miller, 2011; Vissing, Salloway, & Siress, 1994). These authors further described community issues that affect the well-being of rural seniors, such as disproportionate rates of poverty and a lack of suitable housing (Folts et al., 2005). Additionally, Folts et al. (2005) noted that 24% of all persons over 65 live in rural areas, compared with 21% of the total population, and 21% of rural elders could be described as poor, compared with just over 10% of all U.S. elders (pp. 44-45). Vissing and colleagues (1994) underscored the importance of relationship and trust in working with elders in rural community. Yoon (2006) reiterated the importance of spirituality as a means of maximizing the well-being of rural elders. Certainly these are factors to consider as one examines the availability of long-term care in rural communities.

Rural nursing homes tend to have fewer beds, with a larger percentage of homes falling below the Centers for Medicare and Medicaid Services (CMS). This suggests nurse-staffing thresholds and fewer specialized services. The elderly living in rural areas have limited access to long-term care and, therefore, fewer options from which to choose. Geographic barriers place them at a significant disadvantage if they reside in a location that is far from available nursing homes (Hutchinson, Hawes, & Williams, 2005). The same authors noted an earlier study by Phillips, Hawes, and Leyk Williams, who found that rural nursing homes were often smaller than those located in urban areas, more likely to be non-profit or government owned, and likely to depend on Medicaid rather than Medicare. Bolin, Phillips, and Hawes (2006) reiterated the lower percentage of Medicare admissions among rural nursing homes, and noted that residents in rural communities were more likely to have been admitted from home.

Indiana could be considered a mostly rural state, and studies show that the state's nursing homes have been performing well below the national average. Indiana ranks last in the nation in terms of the time Certified Nursing Assistants (CNAs) spend with residents. Hours spent by RNs do not rank much higher. Close to 10% of Indiana nursing homes were ranked among the "most poorly performing" in the country (Gillers, Evans, Nichols, & Alesia, 2010).

There are several factors contributing to the supposed poor quality of care in nursing homes. The most commonly cited factors are a shortage of staffing and inadequate government reimbursement rates. Nursing home owners have been criticized for increasing profits at the cost of quality care. Indiana has one of the highest percentages of for-profit nursing homes, which often means lower staffing and higher employee turnover rates. Profit status may be a predictive factor in overall quality of care. Grabowski and Stevenson (2008) found that when for-profit homes converted to non-profit ownership, a higher quality of care was often observed, with the reverse being the case in facilities that changed from non-profit to for-profit status. Simons (2006) found that social service directors in non-profit facilities tended to be better credentialed than their counterparts in for-profit agencies.

CNAs in Indiana spend less than 15 hours per week with each resident, with CNAs in for-profit homes averaging 1.27 fewer hours. This is in contrast to five-star nursing homes, which average over 18 hours of CNA time. Furthermore, Indiana ranks near the bottom (42nd) in RN hours (Gillers et al., 2010). Nurses employed in nursing homes are assigned greater workloads, including housekeeping duties and transporting patients, resulting in lower job satisfaction (Stanton, 2004). For these reasons, nurses are more likely to seek employment in other settings. This shortage of professional care contributes to the increased likelihood of hospitalization among rural nursing home residents (Gessert, Haller, Kane, & Degenholtz, 2006; Kang et al., 2011).

Indiana pays its CNAs slightly below the national average. There is no minimum requirement for the number of CNAs to work in a home, and there is only a required 3.5 hours of licensed nursing care per resident per week. The Code of Federal Regulations requires only one RN to be on duty for at least 8 consecutive hours a day, 7 days a week (42 C.F.R. § 483.30b, 2011; Stanton, 2004).

Low staff numbers are associated with increased incidences of neglect and the use of restraints. Phillips and five colleagues (1996) studied 250 nursing homes from 10 states and found that facilities with low nurse staffing were more likely to restrain residents indicating a substitution for a lack of nurses. They also found that non-profit homes showed a slightly higher percentage of residents restrained as opposed to for-profit and rural areas showed a higher percentage of residents that were restrained (45.4%) compared with urban areas (36.9%).

Methodology

The data for this study were obtained on the Medicare website which can be accessed at http://www.medicare.gov/NHCompare/. This site presents selected information from the most recent inspection results, usually conducted annually for all Medicare and Medicaid certified nursing homes in the United States.

Data for 485 nursing homes in Indiana were compiled for this study. This represents just over 96% of Indiana's Medicare and Medicaid certified nursing homes. Nursing homes associated with hospital settings were excluded from the study because they represent a substantially different environment. Data collection was limited to Indiana because between-state comparisons may not be appropriate in some cases.

Nursing homes were placed into rural/urban categories based on the counties in which they were located. The counties, in turn, were placed into rural/urban categories based on the Index of Relative Rurality utilized by the Indiana Business Research Center of the Kelley School of Business at Indiana University. The scale takes into account four factors: "population, population density, extent of urbanized area, and distance to the nearest metropolitan area" (Indiana Business Research Center, p. 36), resulting in a scale ranging from 0 (*most urban*) to 1 (*most rural*). This served as the basis for the four categories used in the present study: Category I (*most rural*), Category II (*rural*), Category III (*urban*), and Category IV (*most urban*).

Dependent variables examined in the present study included the following: (a) overall care rating, (b) health inspection rating, (c) staffing rating, and (d) quality measures. The four measures were given stars ranging from 1 star (*much below average*) to 5 stars (*much above average*). In addition to these general measures, a number of specific health outcomes were also included to compare rural/urban differences in quality of care. These included the percent of residents with pressure sores, the percent of residents regularly restrained, the percent of residents who exhibited depression or anxiety since their previous assessment, and the percent of residents with urinary tract infections.

Two measures of severity (number of deficiencies rated as 3 or 4 and the number of deficiencies rated as affecting some or many residents) were included. Less serious deficiencies (rated as 1 or 2) or those designated as affecting few residents or posing no immediate threat were excluded from tabular representation. Two measures of staffing (the number of RN and CNA minutes per day per patient) were included in the analysis.

Results

The sample (485 nursing homes) contained just over 96% of Indiana's Medicare and Medicaid certified nursing homes. Of these, 40 were classified as most rural, 135 as rural, 65 as urban, and 245 as most urban. Ninety-four of the nursing homes had 59 or fewer certified beds, 95 had 60-79 beds, 154 had 80-119 beds, and 142 had 120 or more beds. A total of 328 homes were for-profit.

On rating of "overall care", 101 received 1 star, 104 received 2 stars, 107 received 3 stars, 121 received 4 stars, and 51 received 5 stars. On the "health inspection rating" 99 received 1 star, 112 received 2 stars, 115 received 3 stars, 111 received 4 stars, and 47 received 5 stars. On the "staffing rating" 139 received 1 star, 95 received 2 stars, 89 received 3 stars, 138 received 4 stars, and 15 received 5 stars. On the "quality measures" 34 received 1 star, 75 received 2 stars, 112 received 3 stars, 193 received 4 stars, and 69 received 5 stars.

Data were analyzed across all four groupings (*most rural, rural, urban, and most urban*) using chi-square testing. Across groupings, there were substantially more privately owned facilities as shown in Table 1.

Table 1

Relationship Between Type of Ownership and Urban/Rural Status

Type of Ownership	Most Rural %	Rural %	Urban %	Most Urban %	Indiana %
Private (For Profit)	82.5	70.1	76.9	61.6	67.8

Note. Significance level, $p = .01$

Statistically significant results on measures of overall care, health inspection ratings, and staffing were obtained with all four urban/rural categories in the model. Table 2 reflects that, although differences are relatively small, the highest ratings in these three areas belonged to facilities categorized as rural.

Table 2

Relationship Between Overall Care, Health Inspection Ratings, Staffing, and Urban/Rural Status

Facility Category	Overall Care *M*	Health Inspection *M*	Staffing *M*
Most Rural	3.05 Stars	2.86 Stars	2.80 Stars
Rural	3.25 Stars	3.16 Stars	2.84 Stars
Urban	2.96 Stars	2.92 Stars	2.31 Stars
Most Urban	2.56 Stars	2.56 Stars	2.44 Stars

Note. Significance level, $p = .001$

In relation to RN staffing, although differences across categories are small, residents in rural facilities again fare better than their counterparts in other facilities (see Table 3).

Table 3

Relationship Between Number of RN Minutes and Urban/Rural Status

Facility Category	Two Highest RN Staffing Categories %
Most Rural	32.5
Rural	36.8
Urban	29.9
Most Urban	24.2
Indiana	29.2

Note. Significance level, $p = .01$

Finally, although deficiencies obviously occur within all categories, long-term care facilities categorized as rural generally compare favorably with other homes. Serious deficiencies seem not to have affected large numbers of residents. Average numbers of overall deficiencies are lower for facilities in rural and most rural areas than for urban and most urban care centers (see Tables 4, 5, and 6). It should be further noted that facilities considered rural or most rural compare favorably with Indiana as a whole.

Table 4

Average Number of Deficiencies and Percent of Deficiencies Rated 3 or 4 (Highest Two Categories) by Urban/Rural Status

Facility Category	Average Number of Deficiencies	Deficiencies %
Most Rural	8.60	4.65
Rural	8.50	7.12
Urban	11.40	7.04
Most Urban	9.50	8.70
Most Rural + Rural	8.54	5.89
Most Urban + Urban	9.87	7.87

Note. Significance level, $p = .05$

Table 5

Deficiency Ratings and Urban/Rural Status

Facility Category	Two Lowest Deficiency Categories %
Most Rural	65.0
Rural	60.0
Urban	50.7
Most Urban	48.1
Indiana	53.2

Note. $p = .05$

Table 6

Deficiencies Rated 3 or 4, and Number of Deficiencies Affecting "Some" or "Many" Residents and Urban/Rural Settings

Facility Category	One or Fewer 3-4 Ratings %	Some/Many Residents Affected %
Most Rural	87.5	12.5
Rural	80.0	7.40
Urban	79.0	14.6
Most Urban	75.7	24.5
Indiana	78.4	17.2

Note. Rated 3 or 4, $p = .01$. Number of deficiencies affecting "some" or "many" residents, $p = .001$.

Discussion

The findings of this analysis were contrary to the original expectations of the researchers. Higher ratings for homes in the rural groupings in overall quality of care, health inspections, and staffing were slight, yet were statistically significant. Our findings indicated that nursing homes in rural Indiana counties were less likely to have serious deficiencies and deficiencies affecting large numbers of residents than those in urban counties. It is possible that general ratings for the most urban facilities were skewed by one large county with a number of seriously deficient homes. This should be explored in future research.

Across all four categories, 67.8% of nursing homes were owned by for-profit corporations. Church related not-for-profit homes were most frequently found in rural counties (8.2%). Other not-for-profits (22.4%) and government-affiliated homes (10.6%) were most common in counties deemed most urban.

The researchers noted other interesting trends. Across all four categories, 91.5% of the 485 homes surveyed accepted both Medicare and Medicaid. Just over 5% took Medicare only, and these were likely to be in the most urban group. The 3.3% taking only Medicaid were almost evenly divided between most rural (5%) and most urban (4.9%). Significant differences among the four groups were not noted in terms of pressure sores, use of physical restraints, depression and anxiety, and rates of urinary tract infections.

Perhaps most puzzling to the researchers is the lack of apparent correlation among areas that would appear to be closely related. For example, there appears to be no correlation between RN and CNA hours per resident and health inspection ratings, measures of overall care, or the

specific areas mentioned above. Among the inconsistencies noted are the modal Quality Measures rating of 4 stars (193 homes, or 40%) alongside modal Health Inspection rating of 3 stars (23.8%, 115 homes), and Staffing rating of 1 star (29.2%, 139 homes). Across groups, 7-9% of high risk residents were most likely to have bed sores (24.3% of homes). Modal rates of urinary tract infection across groups were 6-8% (24.8% of homes).

It should be noted that baseline rates of depression and anxiety are missing, since the site reports only increases since the previous assessment and does not indicate how this assessment was conducted. Some possible care indicators, such as the use of chemical restraints, are not available through the Medicare site.

It is evident that further research is needed to provide a complete picture of the quality of long term care available to seniors who require it and to assess any differences in quality based on community type. Further research should compare community per capita income with quality of care and differences based on national region. Also of interest would be the comparison of quality of care and percentages of seniors in that area's population. Demographic, educational, and attitudinal differences among care providers should also be considered. Qualitative measures assessing adequacy of care and consumer satisfaction could be obtained through interviews with seniors and their families.

The good news is that long-term care facilities in rural Indiana appear to offer care that equals, and sometimes surpasses, their urban counterparts. Both quantitative and qualitative study is essential to furthering the understanding of the needs of elderly residents and factors that ensure high quality care. Continued observation of these trends will become increasingly important to social service workers in rural, and indeed, in all communities as the baby boomers enter their senior years.

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Authors' Note

Michelle Emery Blake, a licensed clinical social worker, earned an MSSW from the University of Louisville and a Ph.D. in social work from Florida State University. You may contact her at the Department of Social Work, Austin Peay State University, Clarksville, TN 37044, Telephone: (931) 221-7227, blakem@apsu.edu

Erin M. Fordyce graduated summa cum laude from the University of Evansville in 2010 with a bachelor's degree in Sociology/Criminal Justice. She then accepted a graduate assistantship position from SPEA at IUPUI, where she graduated in May 2012 with a master's degree in Criminal Justice and Public Safety.

Hanns G. Pieper is Professor Emeritus at the University of Evansville and can be reached via email at dp5@evansville.edu.

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