

# STARS

University of Central Florida  
**STARS**

---

Faculty Bibliography 2000s

Faculty Bibliography

---

1-1-2009

## Social Service Staffing in US Nursing Homes

Denise Gammonley  
*University of Central Florida*

Ning Jackie Zhang  
*University of Central Florida*

Kathryn Frahm

Seung Chun Paek

Find similar works at: <https://stars.library.ucf.edu/facultybib2000>

University of Central Florida Libraries <http://library.ucf.edu>

This Article is brought to you for free and open access by the Faculty Bibliography at STARS. It has been accepted for inclusion in Faculty Bibliography 2000s by an authorized administrator of STARS. For more information, please contact [STARS@ucf.edu](mailto:STARS@ucf.edu).

---

### Recommended Citation

Gammonley, Denise; Zhang, Ning Jackie; Frahm, Kathryn; and Paek, Seung Chun, "Social Service Staffing in US Nursing Homes" (2009). *Faculty Bibliography 2000s*. 1551.

<https://stars.library.ucf.edu/facultybib2000/1551>



# Social Service Staffing in U.S. Nursing Homes

Denise Gammonley  
*University of Central Florida*

Ning Jackie Zhang  
*University of Central Florida*

Kathryn Frahm  
*University of South Florida*

Seung Chun Paek  
*University of Central Florida*

Using data from the 2003 national Online Survey Certification and Reporting System, this study examines how the structure of social service staffing in nursing homes is affected by organizational and contextual factors. The results suggest that, although federal regulations impose minimal obligation, requiring only facilities with more than 120 beds to employ qualified social service providers, nearly 12 percent of these facilities failed to meet this staffing requirement in 2003. Results further suggest that the skill mix of social service providers in nursing homes is influenced by market competition, market demand, facility ownership, aggregate resident acuity, and the proportion of facility residents funded by Medicare.

Over 1 million persons reside in more than 16,000 nursing home facilities across the United States, and it is important to examine how psychosocial care is delivered by social service providers in those facilities (National Center for Health Statistics 2006). This study explores how the structure of social service staffing is influenced by variations in facility service environments as well as by market factors surrounding U.S. Medicare- and Medicaid-certified nursing homes.

The Nursing Home Reform Act of 1987 (101 Stat. 1330-160) requires all facilities to provide medically related social service, but it does not

*Social Service Review* (December 2009).  
© 2009 by The University of Chicago. All rights reserved.  
0037-7961/2009/8304-0006\$10.00

mandate licensure for qualified social service providers and it specifies training standards only for facilities with more than 120 beds. Facilities of that size are required to employ at least one qualified full-time social service provider (42 C.F.R. 483.15 [2005]). Further, despite the complex medical and psychosocial needs of nursing home residents, the required credentials for a qualified provider in a facility with more than 120 beds are (1) “a bachelor’s degree in social work or a bachelor’s degree in a human services field, including but not limited to sociology, special education, rehabilitation counseling, and psychology,” and (2) “1 year of supervised social work experience in a health care setting working directly with individuals” (42 C.F.R. 483.15[g] [3] [2005]).

### Staffing and Nursing Home Quality

Professional standards exceed minimum federal standards for providers’ qualifications and the psychosocial care they provide. The National Association of Social Workers (NASW) identifies a professional social worker as minimally qualified to provide nursing home care if the individual holds a bachelor of science degree in social work, a state license (where applicable), and at least 2 years of postuniversity experience (NASW 2003). Established clinical indicators of quality psychosocial services in nursing homes include providing individualized psychosocial assessment, individualized care planning, and protection of resident rights, as well as the promotion of resident choice, problem resolution, and family involvement in care (NASW 1993).

Although concerns for the quality of resident care permeate federal regulations, the regulations do not specifically link quality of care to the tasks that social service providers perform. Standards for care are expressed generally through standards for resident assessment, care planning, discharge planning, and family involvement. An additional regulatory category, administration, requires facilities to ensure that staff members meet state standards for professional practice, including state licensure where applicable (42 C.F.R. 483.75 [g] [2005]).

State efforts to meet minimum federal standards are marked by variation in social service provider qualifications, training, staffing ratios, and care models (Allen, Nelson, and Netting 2007; Bern-Klug 2008; University of Minnesota n.d.). Although nursing research recognizes staffing as a component of nursing home care quality (Harrington et al. 2000; Institute of Medicine 2001; Wan 2003; Wan, Zhang, and Unruh 2006), social service staffing is not considered an important indicator of such quality (Vourlekis et al. 2005).

### Online Survey Certification and Reporting System (OSCAR)

The Centers for Medicare and Medicaid Services certify nursing homes that provide care paid for by Medicare and Medicaid. The centers mandate that every Medicare- or Medicaid-certified facility provide yearly survey information on facility characteristics (e.g., ownership and number of beds), staffing (including social service providers), and results of state government inspections. The Online Survey Certification and Reporting System, or OSCAR, represents the only national system that contains such data on social service providers. Reported staffing levels represent the levels in the 2 weeks prior to the survey. In OSCAR, social service staffing levels are originally calculated as full-time-equivalent employees, but the system distinguishes full-time, part-time, and contract employees. A full-time employee is defined in OSCAR as someone who works 35 hours per week. A contract social service provider is defined in the system as an individual or organization contracted to provide social services. Contract providers may be primarily off-site from the facility. In OSCAR, qualified social service providers (i.e., those who meet the minimum federal credential standard) are differentiated from providers who do not meet the federal standard and who are not volunteers (Centers for Medicare and Medicaid Services 2002). Providers in this Other category bear many titles, and states vary in the credentials they require these Other workers to hold. Other category social service providers include workers with such titles as aide, designee, and assistant. Some states require these workers to have only a high school or general equivalency diploma (University of Minnesota n.d.).

Capturing data on all U.S. nursing home facilities, the staffing measures in OSCAR are widely used to examine staffing and quality (Mullan and Harrington 2001; Schnelle 2004). A recent effort to examine the concurrent reliability of OSCAR staffing measures finds that OSCAR's social service staffing measures are highly correlated (.62) with a survey research instrument designed specifically to measure staffing (Feng et al. 2005). Nevertheless, previous research notes state-level variation in survey administration and enforcement of sanctions for deficiencies (Kash, Hawes, and Phillips 2007). Overreporting of nurse staffing levels has also been noted (Harrington, Carrillo, and Mercado-Scott 2005).

### Conceptual Framework and Study Model

Staffing is a structural component of the facility service environment within the nursing home, and it is also integral in the process of delivering care. Much of the research on health services organizations relies on this structure-process relationship to predict such outcomes as quality of care (Donabedian 1966, 1988). As little is known about social service

in nursing homes, the current study focuses on the structure of social service staffing and not on outcomes. The structure of social service staffing encompasses the number of social service providers available in a facility and the mix of qualifications held by providers.

A limitation of the structure-process-outcome approach to examining the performance of health service environments is that the approach does not consider how outside forces influence facility performance. For social service, these outside contextual factors include federal and other regulations as well as such marketplace forces as the demographic profile of the community. This study focuses on social service providers as a structural resource that nursing home facilities use in response to other structural, process, and contextual demands that are not related to staffing.

#### *Structural Factors within the Facility Service Environment*

Beyond staffing, structural aspects of facility service environments also include such characteristics as the owner of a facility, whether it is a chain member, and the mix of residents (their overall number, sources of funding for care, and level of acuity). Resident acuity represents the intensity of residents' service needs. It is based on the types of medical interventions received and degree of disability in activities of daily living (Cowles 2002). Previous research suggests that facility size, chain affiliation, ownership, payment mix, provider category, and the mix of cases by resident acuity are each associated with nursing home staffing (Harrington et al. 2000; Wan 2003; Mor et al. 2004; Rantz et al. 2004).

Several studies tie large facilities to low levels of nurse staffing (Aaronson, Zinn, and Rosko 1994; Cohen and Spector 1996; Zinn, Weech, and Brannon 1998). Among facilities exceeding the 120-bed threshold (at which point federal regulations require qualified social service staffing), facility size may have different effects than those found in studies of nurse staffing. Having an adequate number of social service staff within a large facility may be especially important, as large facilities are associated with poor quality-of-care outcomes (Castle and Fogel 1998; Harrington et al. 2000). Further, most nursing homes are chain members, and chain membership is identified as an important influence on social work in nursing homes (Kruzich 2004). Facility membership in a chain is also associated with low professional qualifications for social service directors (Simons 2006).

Structural variables included in the current study model are ownership, payer mix, hospital affiliation, and resident acuity. Ownership of facilities is often cited as a factor that influences staffing; for-profit ownership is negatively associated with the number of professional staff, and nonprofit ownership is positively related to overall staffing levels (Aaronson et al.

1994; Harrington et al. 2005; Hillmer et al. 2005; Simons 2006). Payer mix, the proportions of facility residents funded, respectively, by Medicare and Medicaid, is affected by state-level variation in reimbursement rates for Medicaid nursing home services. Some research links high proportions of residents on Medicare with high staffing levels (Harrington et al. 2000). The Medicare and Medicaid systems create a two-tiered system of nursing home care. In nursing homes serving Medicaid residents, the numbers of staff and the quality of care are often poor (Mor et al. 2004).

Resident acuity is an important covariate in studies related to staffing. Facilities with more acute residents have greater staffing levels. Individuals with higher acuity care needs are more likely to enter facilities with high staffing levels (Harrington et al. 2005). These facility-level variations in acuity interact with other structural factors and are found to account for some of the variation in staffing levels (Mueller et al. 2006).

#### *Contextual Factors Influencing the Facility Service Environment*

Several contextual factors are known to affect the facility service environment of nursing homes. These include geographic location and market forces, as well as regulations that affect both the staff rendering care and the organization of the facility (Wan et al. 2006; Zinn et al. 2007). The current study includes two key contextual variables: market competition and market demand for nursing home beds.

#### *Research Question and Hypotheses*

This study asks the following question: If analyses adjust for market factors and other aspects of the facility service environment, is variation in the structure of social service staffing across nursing homes based on their size and chain membership? The assessment begins by describing the distribution of qualified and Other category social service staff across facility service environments for nursing homes. The study tests two hypotheses.

First, if analyses consider nursing homes with 121 or more beds, adjusting for facility size, ownership, payer mix, hospital affiliation, resident acuity, market competition, and market demand, the size of the facility and the absence of chain membership are hypothesized to be associated with the likelihood that a facility will follow federal regulation in employing a qualified social service provider. Second, if models focus on all facilities, adjusting for facility size, ownership, payer mix, hospital affiliation, resident acuity, market competition, and market demand, facility size and the absence of chain membership are hypothesized to be positively related to the likelihood that a facility will employ Other category social service providers.

## Data and Methods

### *Data Sources*

This study uses a retrospective cross-sectional design. It relies on 2003 OSCAR data from the Centers for Medicare and Medicaid Services and on 2000 data from the Area Resource File (ARF) database maintained by the Health Resources and Services Administration. Nearly all nursing home facilities federally certified for Medicare and Medicaid are included in the OSCAR system. State inspectors collect OSCAR data every 9–15 months to verify nursing home compliance with all federal and state regulatory requirements.

### *Data Cleaning*

Data for this study were cleaned to eliminate extreme outliers. Data cleaning criteria were based on techniques employed in other research using the OSCAR data. Facilities in Puerto Rico, the U.S. territories, and Washington, DC, are excluded from analysis because of a small number of OSCAR surveys from these locations (Harrington et al. 2000; Intrator et al. 2005; Mueller et al. 2006). If facility identification codes were duplicated, the most recent survey data are used; if the dates of the surveys were identical, one is randomly selected (Castle 2000). The analyses exclude facilities reporting more residents than beds, fewer than 15 residents, or greater than 100 percent occupation (Harrington et al. 2000; Zhang and Grabowski 2004; Mueller et al. 2006). If the staff-to-resident ratio was greater than one, the facility is also excluded (Degenholtz et al. 2006). The 2003 OSCAR data contain surveys from 16,323 nursing homes. After data cleaning, 14,194 nursing homes (or 85 percent) remain in the study.

Geographic and demographic information on the nursing home market is obtained from ARF data, as is the information on market competition and demand. Data from OSCAR and ARF are merged to enable a study of the effects of organizational and market factors on social service staffing.

### *Dependent Variables: Staffing Structure*

The dependent variables for the study are two social service staffing items measured in the OSCAR database: (1) the number of qualified social service providers employed in each sampled facility with 121 or more beds and (2) the total number of Other category social service providers in all sampled facilities. This study relies on OSCAR survey documentation in defining Other social service providers as “persons other than the qualified social worker who are involved in providing medical social services to residents” (Centers for Medicare and Medicaid

Services 2002, 6). In the OSCAR data, both dependent variables are measured as full-time-equivalent employees (FTE; in this case, providers) and reflect the availability of social service in nursing homes, regardless of whether the services are provided by full-time, part-time, or contract employees. Both dependent variables are treated as binary variables. The number of qualified social service providers in a facility is coded as 1 if its full-time qualified provider number is equal to or greater than 1. It is coded as 0 otherwise. The total number of Other category social service providers is coded as 1 if its full-time Other provider number is greater than 0 and as 0 otherwise. Because 68.8 percent of nursing homes in the study have fewer than 121 beds, and thus are not required to employ a qualified social service provider, the binary measurement of dependent variables is appropriate to examine the factors associated with the supply of qualified providers in facilities of at least 121 beds.

#### *Independent Variables*

Facility size is measured by the total number of Medicare- and Medicaid-certified nursing home beds. Chain membership, indicating affiliation with a group of nursing homes owned by the same organization, is treated as a dichotomous variable in the OSCAR data. A facility is coded as 1 if it is a member of a chain and as 0 otherwise.

#### *Control Variables*

Controlled organizational factors include nursing home ownership (categorized as for-profit, nonprofit, or government), payer mix (percentage of residents on Medicare and percentage of those on Medicaid), hospital affiliation (whether or not the home is a hospital-based facility), and a facility-level resident acuity index. Controls for two contextual factors, market competition and market demand, are derived from indicators in the ARF database. Market competition is measured by the Herfindahl-Hirschman Index and is calculated as

$$\text{H-H index} = \sum_{i=1}^n \left( \frac{\text{Number of beds in a nursing home}}{\text{Number of beds in a county}} \right)^2, \quad (1)$$

where  $n$  represents the total number of nursing homes,  $i$  represents each nursing home and represents the summation of squared market share of each nursing home. A higher value on the H-H score indicates less competition. Market demand is measured by the percentage of people 75 years or older in the county where a nursing home is located. Resident acuity is a weighted case-mix index developed by the Cowles Research Group (Cowles 2002). The index reflects resident need for assistance with activities of daily living, such as transferring from a seated



to a standing position and receipt of intensive medical therapies. Possible scores range from 0 to 38.<sup>1</sup>

### *Analysis*

Descriptive analysis of the study variables is conducted for two samples: (1) facilities with 121 or more beds and (2) all facilities. Two binomial logistic regression models are used to test the two hypotheses in the study because the dependent variables in the two hypotheses are both binary categorical variables. Model 1 tests the first hypothesis using the subsample of nursing homes with 121 or more beds; the second binomial model tests the second hypothesis using the sample of all nursing homes. The Hosmer and Lemeshow goodness-of-fit tests are used to evaluate the performance of the models (Hosmer and Lemeshow 2000). Odds ratios and their statistical significances are used to assess the effects of the hypothesized variables. An odds ratio greater than one indicates a positive relation between the independent variable and the dependent variable; an odds ratio smaller than one indicates a negative relation. The statistical significance level is fixed at .05. The model results are produced using SAS 9 software (version 9).

Beside main effects, the logistic regression models examine possible interactions between independent and control variables. Resulting interaction effects, statistical significance, and main effects are reported in the tables.

### **Results**

Descriptive statistics of study variables are presented in table 1. The table suggests that the facility size, measured as the average number of beds in all sampled facilities, is 112. The sample includes 4,424 (31.1 percent) facilities that have 121 or more beds. Of those facilities, 88.18 percent employ at least one qualified social service provider; 44.83 percent of all sampled facilities reportedly employ Other category social service providers. In table 1, the total qualified provider FTE represents the number of full-time-equivalent employees (in this case, providers). This item is based upon the OSCAR staffing calculation guidelines, which identify 35 working hours per week as full-time employment. Among facilities of any size, average total qualified provider FTE was 1.156, and average total Other social service provider FTE was .548. Of the 14,424 facilities in the full sample, 53.10 percent are chain members and 66.56 percent are owned by a for-profit entity. The reported percentages in facilities with 121 or more beds mirror those described above. A small percentage (7.40 percent) of all facilities are affiliated with hospitals. In facilities with 121 or more beds, this percentage is

**Table 1**  
DESCRIPTIVE STATISTICS OF STUDY VARIABLES FOR  
U.S. NURSING HOME FACILITIES IN 2003

VARIABLE	121 OR MORE BEDS ( <i>n</i> = 4,424)		120 OR FEWER BEDS ( <i>n</i> = 9,770)		ALL FACILITIES ( <i>N</i> = 14,194)	
	<i>M</i> or %	<i>SD</i>	<i>M</i> or %	<i>SD</i>	<i>M</i> or %	<i>SD</i>
Dependent variables:						
Employment of qualified SSP (%)	88.18	NA	52.75	NA	63.79	NA
Employment of other SSP (%)	48.40	NA	43.21	NA	44.83	NA
Qualified SSP:						
Total QP FTE	1.910	1.562	.815	.710	1.156	1.168
Total full-time QP FTE	1.769	1.490	.715	.698	1.043	1.125
Total part-time QP FTE	.122	.367	.076	.274	.090	.307
Total contract QP FTE	.020	.148	.025	.137	.023	.141
Other SSP:						
Total Other provider FTE	.750	1.161	.456	.701	.548	.882
Total full-time Other provider FTE	.664	1.092	.395	.670	.479	.834
Total part-time Other provider FTE	.077	.286	.056	.213	.062	.238
Total contract Other provider FTE	.008	.102	.006	.069	.007	.081
Covariates:						
Chain membership (%)	53.28	NA	53.02	NA	53.10	NA
Nonprofit ownership (%)	26.72	NA	27.83	NA	27.48	NA
For-profit ownership (%)	66.79	NA	66.45	NA	66.56	NA
Government ownership (%)	6.49	NA	5.72	NA	5.96	NA
Hospital-affiliated facility (%)	3.80	NA	9.04	NA	7.40	NA
Facility size (total no. of beds)	183.310	84.105	79.795	28.326	112.059	71.103
% of residents on Medicare	12.04	11.90	12.27	16.65	12.20	15.33
% of residents on Medicaid	66.74	19.20	61.91	23.83	63.41	22.60
% of age 75+ residents in county	6.27	1.79	6.81	2.30	6.64	2.17
Market competition	.144	.193	.231	.251	.204	.238
Resident acuity	10.327	1.370	10.117	1.621	10.182	1.550

NOTE.—NA = not applicable; SSP = social service provider; QP = qualified provider; FTE = full-time-equivalent employees. Unless otherwise specified, results are means.

even smaller (3.80 percent). On average, 63.41 percent of residents in nursing homes are reported to be Medicaid beneficiaries.

Table 2 presents the results of the logistic regression of qualified social service providers in facilities with 121 or more beds. The Hosmer and Lemeshow goodness-of-fit test shows that the model explains part of the variance, since the *p*-value of the test is greater than .05. Results suggest that the variable representing facility size is statistically significantly related to the odds of employing a qualified social service provider (OR = 1.003). The results indicate that, for each additional bed supplied, a nursing home has 0.3 percent greater odds of following the federal standard by employing a qualified social service provider. Results for the measure of chain membership are not statistically significantly related to the dependent variable. All in all, the findings partially support the first hypothesis, which posits that facility size and chain membership are associated with the likelihood of employing a qualified social service provider.

Three other variables are associated to a statistically significant degree with the odds of employing a qualified social service provider: nonprofit

Table 2

RESULTS OF BINARY LOGISTIC REGRESSION ON THE EMPLOYMENT OF QUALIFIED SOCIAL SERVICE PROVIDERS

Variable	OR	95% CI
Categorical variables:		
Chain membership (vs. no chain membership)	1.188	.978, 1.443
Nonprofit ownership (vs. for-profit ownership)	1.537*	1.200, 1.969
Government ownership (vs. for-profit ownership)	1.296	.843, 1.994
Hospital-affiliated (vs. not)	.615	.372, 1.018
Continuous variables:		
Facility size (total no. of beds)	1.003*	1.002, 1.005
% of 75+ residents in county <sup>a</sup>	1.028	.975, 1.083
% of residents on Medicare	.841	.324, 2.187
% of residents on Medicaid	1.298	.709, 2.375
Resident acuity	1.146*	1.072, 1.226
Market competition	.583*	.374, .910
Chi-square (df) <sup>b</sup>	8.544	(8)

NOTE.—The table presents results for a subsample of facilities with more than 120 beds ( $n = 4,424$ ). OR = odds ratio; CI = confidence interval.

<sup>a</sup> Percentage of 75+ population  $\times 100$ .

<sup>b</sup> Hosmer and Lemeshow goodness-of-fit test;  $p = .382$ .

\* Statistically significant at the .05 level.

ownership, resident acuity, and market competition. Among them, market competition is found to have the strongest effect on the employment of qualified social service providers (OR = .583). The odds ratio suggests that the likelihood of employing a qualified social service provider diminishes as market competition increases. However, resident acuity and nonprofit ownership are found to be positively related to the odds of employing qualified social service providers.

Table 3 presents the results of logistic regressions examining the second hypothesis. This model tests the hypothesis that facility size and chain membership are related to employment of social service providers in the Other category. Results of the Hosmer and Lemeshow goodness-of-fit test show that the  $p$ -value of the test is greater than .05. Both chain membership (OR = .909) and facility size (OR = 1.002) are found to be statistically significantly related to the odds of employing at least one worker in the Other category. The odds ratios indicate that chain-member nursing homes are less likely to employ the Other category social service provider than are homes that are not members of chains. The odds of employing an Other category provider are positively associated with facility size. These findings support the second hypothesis, which holds that facility size is positively related to the odds of employing an Other category provider and that chain membership is negatively related to these odds.

Six other variables in the model are also found to be statistically significantly related to the odds of employing an Other category pro-

Table 3

RESULTS OF BINARY LOGISTIC REGRESSION OF THE EMPLOYMENT OF OTHER SOCIAL SERVICE PROVIDERS

Variable	OR	95% CI
Categorical variables:		
Chain membership (vs. no chain membership)	.909*	.847, .975
Nonprofit ownership (vs. for-profit ownership)	.852*	.784, .927
Government ownership (vs. for-profit ownership)	.924	.788, 1.083
Hospital-affiliated (vs. not)	.728*	.623, .851
Continuous variables:		
Facility size (total no. of beds)	1.002*	1.001, 1.002
% of 75+ residents in county <sup>a</sup>	.970*	.950, .992
% of residents on Medicare	.551*	.405, .750
% of residents on Medicaid	1.120	.923, 1.360
Resident acuity	.964*	.942, .985
Market competition	.601*	.390, .927
Interaction 1 <sup>b</sup>	1.001*	1.001, 1.002
Chi-square (df) <sup>c</sup>	7.305	(8)

NOTE.— $N = 14,194$ . OR = odds ratio; CI = confidence interval.<sup>a</sup> Percentage of 75+ population  $\times 100$ .<sup>b</sup> Percentage of county residents age 75 or older  $\times$  market competition.<sup>c</sup> Hosmer and Lemeshow goodness-of-fit test;  $p = .504$ .

\* Statistically significant at the .05 level.

vider. These include nonprofit ownership, hospital affiliation, the percentage of residents age 75 or over in a county, the percentage of residents on Medicare, resident acuity, and market competition. The odds ratios attached to these six variables are less than one. This suggests that the likelihood of employing an Other category worker is negatively related to nonprofit ownership, hospital affiliation, resident acuity, the percentage of residents on Medicare, market competition, and market demand.

Among all the potential interaction effects tested, only the interaction between market demand (percentage of the population age 75 or over) and market competition is found to be statistically significant. The finding indicates that market demand moderates the negative relation between market competition and employment of Other category social service providers; the higher the percentage of people age 75 or over in the county where a nursing home is located, the more positive the effect of market competition on the employment of the Other category social service providers.

## Discussion

The federal regulations that identify qualified social service providers in nursing homes fall short of recognized professional standards for social work services and quality psychosocial care in nursing homes

(NASW 2003). This population-based study of U.S. nursing homes employs OSCAR data to examine the structure of social service staffing in those homes. It increases understanding of a neglected aspect of the literature on staffing in nursing homes by providing a profile of social service staffing across U.S. nursing homes of all sizes. It also contributes to the limited knowledge base by examining the extent to which staffing variation is due to facility service environment factors within the nursing home organization and to contextual factors. Similar to studies of nurse staffing, the current results suggest that staffing is influenced by several structural factors within the facility service environment and by contextual factors. Results also suggest that, both for the entire sample of homes in 2003 and for the subgroup of homes with more than 120 beds, market forces are strong predictors of qualified social service staffing.

#### *Staffing Skill Mix*

Although most (88 percent) homes with more than 120 beds reportedly met the federal minimum standard in 2003, employing at least one qualified social service provider, more than twice as many (9,770) had 120 or fewer beds (and so were not required to meet that standard). Only slightly more than half (53 percent) of these smaller facilities report employing someone who met the federal standards for a qualified social service provider. Across all nursing homes in 2003, regardless of bed size, 36 percent of facilities reportedly did not offer residents the services of a social service provider deemed qualified under the federal standard. Nursing homes with 121 or more beds average 1.910 total FTE qualified social service providers, whereas smaller facilities average .815 full-time-equivalent qualified providers. Most of these hours were contributed by full-time providers; use of part-time and contract staffing is minimal.

Across facilities of any size, only 45 percent of nursing homes reportedly employ Other category social service providers (i.e., those who do not meet the minimum federal standard). The hours worked by these Other category social service providers are highest in facilities with 121 or more beds (.75 FTE). Similar to the findings for qualified social service providers, use of part-time and contract providers in the Other category represents a small proportion of the staffing across nursing homes of any size.

Results suggest that nonprofit ownership, facility size, and resident acuity increase the likelihood that facilities with more than 120 beds employ a qualified social service provider. Nonprofit ownership and resident acuity are negatively related to the likelihood of employing Other category providers in all facilities. Other facility factors have differential effects on the two categories of providers. Membership in a

chain is not statistically significantly associated with the likelihood of employing qualified providers, but it is negatively related to the likelihood of employing Other social service providers.

Across facilities of all sizes, the percentage of residents funded by Medicare is found to be inversely related to the likelihood of employing Other category social service providers. The only payer mix variable found to affect staffing, the percentage of facility residents funded by Medicare, is estimated to reduce the likelihood that a nursing home employs Other category providers. In homes with 121 or more beds, neither Medicare nor Medicaid payer status is estimated to influence the likelihood that a facility adheres to the federal minimum standard by employing a qualified social service provider.

#### *Resident Acuity*

The findings indicate that, among facilities with 121 or more beds, resident acuity is positively and statistically significantly associated with the odds of employing a qualified social service provider. Among facilities of any size, resident acuity is negatively and statistically significantly associated with the likelihood of employing Other category providers. High resident acuity enables facilities to maximize reimbursement for services based on physical rehabilitation needs.

At the core of social service activity in hospital-affiliated nursing homes are comprehensive psychosocial assessment and care planning. These efforts ensure timely processing of admissions and discharges. This study finds that hospital affiliation is negatively and statistically significantly associated with the likelihood that a nursing home employs Other category social service providers. However, hospital affiliation does not influence the likelihood that a home with 121 or more beds adheres to the minimum federal standard by employing a qualified social service provider. This suggests that social service staffing may be driven primarily by efforts to meet minimum federal standards instead of by efforts to meet resident need. This is not surprising given the Prospective Payment System reimbursement scheme, which bundles social services as a fixed component of the broad category of ancillary services. The current reimbursement system provides no incentive for nursing homes to deliver social service in response to specific resident needs.

The Prospective Payment System mandates that nursing care and specialized therapies be reimbursed on the basis of resident acuity and the associated intensity of care delivered. Established in 1997 as part of the Balanced Budget Act (111 Stat. 251), the Prospective Payment System implements per diem reimbursement for nursing home care. The reimbursement is adjusted on the basis of case mix in a facility. Resident acuity case mix is determined through a resident classification system derived from resident assessment data and by weighted staff-time data

(Centers for Medicare and Medicaid Services 2009). There is much to be learned about resident acuity and its relationship to the kinds of psychosocial care delivered by qualified social service providers. Providing residents with psychosocial care, including, for example, support and advocacy for end-of-life decision making, may be just as time-intensive for social service staff and may require high staff qualifications. Existing measures of resident acuity may not fully reflect the job tasks and demands placed upon qualified social service providers. This, in turn, may lead to the limited predictive power of the measures.

#### *Market Forces*

Results suggest that, among facilities in the subgroup required to adhere to the minimum federal standards, market forces exert an important influence on the structure of social service staffing. Among nursing homes required to meet the federal standard, market competition in the community where the nursing home was located is estimated to diminish the chances that a facility adheres to the requirement to employ a qualified social service provider. This is the strongest predictor variable. A statistically significant interaction between market competition and market demand (percentage of county residents age 75 or older) influences the employment of Other category social service providers. Although market competition is found to be negatively related to the odds of employing an Other category provider, there is an interaction effect with market demand. These findings may reflect that resources in competitive labor markets are allocated to recruitment of other nursing home staff or other operations.

The finding that market demand moderates the negative relation between market competition and the likelihood of employing Other category providers may be related to financial pressures on nursing homes. Cutting qualified social service staffing and diluting the professional ranks with Other category providers may be responses to cost reduction imperatives. One may presume that, when more nursing home facilities are in a community and more of the population is age 75 or over, the demand for social service is higher and concern for quality of care is greater. Information about quality is found on the Nursing Home Compare site, a national nursing home database maintained by the Centers for Medicare and Medicaid Services.<sup>2</sup> However, the database does not report measures of social service staffing or psychosocial care provision as quality indicators. As a result, consumers have limited access to information about the quality of social service provided in nursing homes.

*Limitations and Future Directions*

One important limitation of this study is the reliance on the OSCAR staffing data. The data are self-reported by facility administrators, and they are subject to cross-state variation due to differing facility survey methods and limitations of the OSCAR measures. Data are reported once per year and provide only a snapshot of staffing activity at one point in time. As such, the staffing numbers reported may not represent the average number of social service providers employed throughout the year. However, OSCAR still provides the best available national data on nursing home facilities in the United States. Due to limited variation, this study does not differentiate among full-time, part-time, and contract social service providers. Future research should address this issue. The use of agency contract staffing for other disciplines within the nursing home is known to be problematic for the outcomes of residents and facilities (Bourbonniere et al. 2006).

Because of the use of cross-sectional data, the current results may be biased by unobserved heterogeneity. This study is also unable to provide information about resident outcomes associated with social service staffing levels. Examining the nature of any such association is an essential next step for social work research on staffing in nursing homes.

Little is known about qualified social service provision's relations to the scope and type of psychosocial care or about that care's relations to resident and facility outcomes. Such outcomes include bed occupancy and other aspects of financial performance. Because market factors have such a strong influence on staffing, it is crucial to establish connections between the provision of social service by qualified providers and subsequent benefits for residents, families, and nursing home organizations. If researchers can demonstrate that resident quality of life and facility performance benefit from qualified social service provided to nursing home residents, such a finding will lend credibility to the social work profession's efforts to advocate for stronger social service staffing regulations. This kind of study will require longitudinal data to evaluate dynamic relationships among social service staffing, nursing home quality, and resident outcomes.



## Appendix

Table A1

## BIVARIATE CORRELATION

	1	2	3	4	5	6
Pearson correlations, hypothesis 1:*						
1. Facility size	1	-.01024	.03775	.00479	-.10351	.03571
2. % of 75+ residents in county	-.01024	1	.02874	-.04982	.06926	-.09514
3. % of residents on Medicare	.03775	.02874	1	-.57649	-.07625	.03348
4. % of residents on Medicaid	.00479	-.04982	-.57649	1	.1088	.07831
5. Market competition	-.10351	.06926	-.07625	.1088	1	.03589
6. Resident acuity	.03571	-.09514	.03348	.07831	.03589	1
Pearson correlations, hypothesis 2:†						
1. Facility size	1	-.10762	-.03253	.1296	-.1758	.07728
2. % of 75+ residents in county	-.10762	1	-.06101	-.06908	.19129	-.1623
3. % of residents on Medicare	-.03253	-.06101	1	-.57429	-.13016	.01952
4. % of residents on Medicaid	.1296	-.06908	-.57429	1	.11926	.08672
5. Market competition	-.1758	.19129	-.13016	.11926	1	-.04403
6. Resident acuity	.07728	-.1623	.01952	.08672	-.04403	1
Cramer's V test, hypothesis 1:‡						
1. Chain membership	1	.3082	.0913			
2. Ownership		1	.2642			
3. Hospital affiliated			1			
Cramer's V, hypothesis 2:§						
1. Chain membership	1	.2945	.1187			
2. Ownership		1	.3603			
3. Hospital affiliated			1			

\* Pearson correlations of continuous independent variables in nursing homes with 121 or more beds (hypothesis 1;  $n = 4,424$ ).

† Pearson correlations of continuous independent variables in all nursing homes (hypothesis 2;  $N = 14,194$ ).

‡ Cramer's V test for categorical independent variables in nursing homes with 121 or more beds (hypothesis 1;  $n = 4,424$ ).

§ Cramer's V test for categorical independent variables in all nursing homes (hypothesis 2;  $N = 14,194$ ).

## References

- Aaronson, William E., Jacqueline S. Zinn, and Michael D. Rosko. 1994. "Do For-Profit and Not-for-Profit Nursing Homes Behave Differently?" *Gerontologist* 34 (6): 775-86.
- Allen, Priscilla D., H. Wayne Nelson, and F. Ellen Netting. 2007. "Current Practice and Policy Realities Revisited: Undertrained Nursing Home Social Workers in the U.S." *Social Work in Health Care* 45 (4): 1-22.
- Bern-Klug, Mercedes. 2008. "State Variations in Nursing Home Social Worker Qualifications." *Journal of Gerontological Social Work* 51 (3-4): 379-409.
- Bourbonniere, Meg, Zhanlian Feng, Orna Intrator, Joseph Angelelli, Vincent Mor, and Jacqueline S. Zinn. 2006. "The Use of Contract Licensed Nursing Staff in U.S. Nursing Homes." *Medical Care Research and Review* 63 (1): 88-109.
- Castle, Nicholas G. 2000. "Deficiency Citations for Physical Restraint Use in Nursing Homes." *Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 55 (1): S33-S40.

- Castle, Nicholas G., and Barry Fogel. 1998. "Characteristics of Nursing Homes That Are Restraint Free." *Gerontologist* 38 (2): 181–88.
- Centers for Medicare and Medicaid Services. 2002. "Long-Term Care Facility Application for Medicare/Medicaid." <http://www.cms.hhs.gov/CMSForms/CMSForms/ItemDetail.asp?ItemID=CMS006581> (accessed October 19, 2009).
- . 2009. "Overview: Case Mix Prospective Payment for SNF's Balanced Budget Act of 1997." [http://www.cms.hhs.gov/SNFPPS/01\\_overview.asp](http://www.cms.hhs.gov/SNFPPS/01_overview.asp) (accessed October 23, 2009).
- Cohen, Joel W., and William D. Spector. 1996. "The Effect of Medicaid Reimbursement on Quality of Care in Nursing Homes." *Journal of Health Economics* 15 (1): 23–48.
- Cowles, C. McKeen. 2002. *Nursing Home Statistical Yearbook*. Montgomery Village, MD: Cowles Research Group.
- Degenholtz, Howard B., Rosalie A. Kane, Robert L. Kane, Boris Bershadsky, and Kristen C. Kling. 2006. "Predicting Nursing Facility Residents' Quality of Life Using External Indicators." *Health Services Research* 41 (2): 335–56.
- Donabedian, Avedis. 1966. "Evaluating the Quality of Medical Care." *Milbank Memorial Fund Quarterly* 44, no. 3, pt. 2: 166–206.
- . 1988. "The Quality of Care: How Can It Be Assessed?" *Journal of the American Medical Association* 260 (12): 1743–48.
- Feng, Zhanlian, Paul R. Katz, Orna Intrator, Jurgis Karuza, and Vincent Mor. 2005. "Physician and Nurse Staffing in Nursing Homes: The Role and Limitations of the Online Survey Certification and Reporting (OSCAR) System." *Journal of the American Medical Directors Association* 6 (1): 27–33.
- Harrington, Charlene, Helen Carrillo, and Cynthia Mercado-Scott. 2005. "Nursing Facilities, Staffing, Residents, and Facility Deficiencies, 1998 through 2004." Report, August. University of California, San Francisco.
- Harrington, Charlene, David Zimmerman, Sarita L. Karon, James Robinson, and Patricia Beutel. 2000. "Nursing Home Staffing and Its Relationship to Deficiencies." *Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 55 (5): S278–S287.
- Hillmer, Michael P., Walter P. Wodchis, Sudeep S. Gill, Geoffrey M. Anderson, and Paula A. Rochon. 2005. "Nursing Home Profit Status and Quality of Care: Is There Any Evidence of an Association?" *Medical Care Research and Review* 62 (2): 139–66.
- Hosmer, David W., and Stanley Lemeshow. 2000. *Applied Logistic Regression*. 2nd ed. Hoboken, NJ: Wiley.
- Institute of Medicine, Committee on Quality of Health Care in America. 2001. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, DC: National Academy Press.
- Intrator, Orna, Zhanlian Feng, Vincent Mor, David Gifford, Meg Bourbonniere, and Jacqueline S. Zinn. 2005. "The Employment of Nurse Practitioners and Physician Assistants in U.S. Nursing Homes." *Gerontologist* 45 (4): 486–95.
- Kash, Bit A., Catherine Hawes, and Charles D. Phillips. 2007. "Comparing Staffing Levels in the Online Survey Certification and Reporting (OSCAR) System with the Medicaid Cost Report Data: Are Differences Systematic?" *Gerontologist* 47 (4): 480–89.
- Kruzich, Jean M. 2004. "Ownership, Chain Affiliation, and Administrator Decision-Making Autonomy in Long-Term Care Facilities." *Administration in Social Work* 29 (1): 5–24.
- Mor, Vincent, Jacqueline S. Zinn, Joseph Angelelli, Joan M. Tenno, and Susan C. Miller. 2004. "Driven to Tiers: Socioeconomic and Racial Disparities in the Quality of Nursing Home Care." *Milbank Quarterly* 82 (2): 227–56.
- Mueller, Christine, Greg Arling, Robert Kane, Julie Bershadsky, Diane Holland, and Annika Joy. 2006. "Nursing Home Staffing Standards: Their Relationship to Nurse Staffing Levels." *Gerontologist* 46 (1): 74–80.
- Mullan, Joseph T., and Charlene Harrington. 2001. "Nursing Home Deficiencies in the United States: A Confirmatory Factor Analysis." *Research on Aging* 23 (5): 503–31.
- NASW (National Association of Social Workers). 1993. "NASW Clinical Indicators for Social Work and [sic] Psychosocial Services in Nursing Homes." [http://www.socialworkers.org/practice/standards/nursing\\_homes.asp#scope](http://www.socialworkers.org/practice/standards/nursing_homes.asp#scope) (accessed May 20, 2008).
- . 2003. *NASW Standards for Social Work Services in Long-Term Care Facilities*. NASW, Washington, DC.
- National Center for Health Statistics. 2006. "Number and Percent Distribution of Nursing Homes by Selected Facility Characteristics, According to Number of Beds, Beds per

## 650 Social Service Review

- Nursing Home, Current Residents, and Occupancy Rate: United States, 2004." Table 1 in *Nursing Home Facilities*, a report of the 2004 National Nursing Home Survey, December. <http://www.cdc.gov/nchs/data/nnhsd/nursinghomefacilities2006.pdf> (accessed October 23, 2009).
- Rantz, Marilyn J., Lanis Hicks, Victoria Grando, Gregory F. Petroski, Richard W. Madsen, David R. Mehr, Vicki Conn, et al. 2004. "Nursing Home Quality, Cost, Staffing, and Staff Mix." *Gerontologist* 44 (1): 24–38.
- Schnelle, John F. 2004. "Determining the Relationship between Staffing and Quality." *Gerontologist* 44 (1): 10–12.
- Simons, Kelsey V. 2006. "Organizational Characteristics Influencing Nursing Home Social Service Directors' Qualifications: A National Study." *Health and Social Work* 31 (4): 266–74.
- University of Minnesota, School of Public Health. n.d. "NHRegsPlus." Database of regulatory codes related to nursing homes. <http://www.hpm.umn.edu/nhregsPlus/index.htm> (accessed February 6, 2009).
- Vourlekis, Betsy, Joan Levy Zlotnik, Kelsey Simons, and Rebecca Toni. 2005. "Blueprint for Measuring Social Work's Contribution to Psychosocial Care in Nursing Homes: Results of a National Conference." Issue Brief, Winter. Boston University, School of Social Work, Institute for Geriatric Social Work, Boston.
- Wan, Thomas T. H. 2003. "Nursing Care Quality in Nursing Homes: Cross-Sectional versus Longitudinal Analysis." *Journal of Medical Systems* 27 (3): 283–95.
- Wan, Thomas T. H., Ning Jackie Zhang, and Lynn Unruh. 2006. "Predictors of Resident Outcome Improvement in Nursing Homes." *Western Journal of Nursing Research* 28 (8): 974–93.
- Zhang, Xinzhi, and David C. Grabowski. 2004. "Nursing Home Staffing and Quality under the Nursing Home Reform Act." *Gerontologist* 44 (1): 13–23.
- Zinn, Jacqueline S., Vincent Mor, Zhanlian Feng, and Orna Intrator. 2007. "Doing Better to Do Good: The Impact of Strategic Adaptation on Nursing Home Performance." *Health Services Research* 42, no. 3, pt. 1: 1200–18.
- Zinn, Jacqueline S., Robert Weech, and Diane Brannon. 1998. "Resource Dependence and Institutional Elements in Nursing Home TQM Adoption." *Health Services Research* 33 (2): 261–73.

## Notes

This research was sponsored by the Hartford Geriatric Social Work Faculty Scholars Program supported by a grant to the Gerontological Society of America from the John A. Hartford Foundation.

1. The resident acuity index represents the sum of (totally dependent for eating × 3) + (requiring assistance from one or two staff with eating × 2) + (either independent or requiring supervision eating) + (totally dependent of toileting × 5) + (requiring assistance of one or two staff with toileting × 3) + (independent or requiring supervision with toileting) + (totally dependent for transferring × 5) + (requiring the assistance from one or two staff with transferring × 3) + (independent or requiring supervision for transferring) + (bedfast × 5) + (chair-bound × 3) + (ambulatory) + (receiving respiratory care) + (receiving suctioning) + (receiving intravenous therapy) + (receiving tracheostomy care) + (receiving parenteral feeding).

2. See <http://www.medicare.gov/NHCompare/Include/DataSection/Questions/ProximitySearch.asp>.