Strategic Orientation and Nursing Home Response to Public Reporting of Quality Measures: An Application of the Miles and Snow Typology

Jacqueline S. Zinn, William D. Spector, David L. Weimer, and Dana B. Mukamel

Objective. To assess whether differences in strategic orientation of nursing homes as identified by the Miles and Snow typology are associated with differences in their response to the publication of quality measures on the Nursing Home Compare website.

Data Sources. Administrator survey of a national 10 percent random sample (1,502 nursing homes) of all facilities included in the first publication of the Nursing Home Compare report conducted in May–June 2004; 724 responded, yielding a response rate of 48.2 percent.

Study Design. The dependent variables are dichotomous, indicating whether or not action was taken and the type of action taken. Four indicator variables were created for each of the four strategic types: Defender, Analyzer, Prospector, and Reactor. Other variables were included in the seven logistic regression models to control for factors other than strategic type that could influence nursing home response to public disclosure of their quality of care.

Data Collection/Extraction Methods. Survey data were merged with data on quality measures and organizational characteristics from the first report (November 2002).

Principal Findings. About 43 percent of surveyed administrators self-typed as Defenders, followed by Analyzers (33 percent), and Prospectors (19 percent). The least self-selected strategic type was the Reactor (6.6 percent). In general, results of the regression models indicate differences in response to quality measure publication by strategic type, with Prospectors and Analyzers more likely, and Reactors less likely, to respond than Defenders.

Conclusions. While almost a third of administrators took no action at all, our results indicate that whether, when, and how nursing homes reacted to publication of federally reported quality measures is associated with strategic orientation.

Key Words. Nursing homes, quality measures, strategy

Nursing homes are an important component of the health care system, serving approximately 1.5 million elderly and disabled Americans in 16,323 Medicare and Medicaid certified nursing homes in 2003 (National Center for Health Statistics 2005). In view of the crucial role these facilities play in the care of the frail elderly, it is troubling that the nursing home industry has been persistently plagued by poor quality (Wheeler 2003; Winzelberg 2003). Typically, government reaction to quality concerns has taken a regulatory form, mandating compliance requirements that impact on virtually every aspect of nursing home operation. Yet, despite ongoing stringent reform efforts by the Centers for Medicare and Medicaid Services (CMS), the regulatory process is still viewed as inadequate. For example, a 1999 U.S. General Accounting Office study found that one-fourth of the nation's nursing homes had serious deficiencies that caused actual harm to residents or placed them at risk of death or serious injury and 40 percent had serious repeat deficiencies (Johnson et al. 2004).

Consequently, the effectiveness of sole reliance on regulatory approaches has come under closer scrutiny. The Bush Administration has consistently expressed its preference for market solutions over regulation with respect to quality of nursing home care (U.S. Department of Health and Human Services 2000). Consistent with this market-based approach, in November 2002, CMS launched the Nursing Home Quality Initiative, introducing quality measures to supplement the information about deficiency citations and staffing found on the Nursing Home Compare website. These quality measures are intended to provide objective information that can be used as one indication of how well the nursing home manages various aspects of care provided to residents. These measures were widely publicized by CMS when first published through full-page advertisements in all the major newspapers in the country. Consumer interest has been great and Nursing Home Compare has become one of the most frequently visited sites on Medicare.com (National Quality Forum 2004). A description of the quality measures that were posted at the time of this study can be found in Appendix A (available online).

Address correspondence to Jacqueline S. Zinn, Ph.D., Professor, Department of Risk, Insurance and Healthcare Management, Temple University, 413 Ritter Annex, Philadelphia, PA 19122. William D. Spector, Ph.D., Senior Social Scientist, is with the Center for Delivery, Organizations and Markets, Agency for Healthcare Research and Quality, Rockville, MD. David L. Weimer, Ph.D., Professor of Political Science and Public Affairs, is with the Robert M. La Follette School of Public Affairs, University of Wisconsin-Madison, Madison, WI. Dana B. Mukamel, Ph.D., Professor, is with the Department of Medicine, Senior Fellow, Center for Health Policy Research, University of California, Irvine, CA.

The publication of these quality measures represents a major change in the operating environment that could influence the nursing home's ability to attract and retain residents. Thus, we would expect that nursing homes would have the incentive to address performance expectations potentially influenced by the availability of public reporting. Although whether and to what extent public reporting was responsible remains an open question, some of the performance areas covered by the quality reports exhibited improvement, and in some instances, the improvement was quite substantial. For example, pain experienced by long-term stay residents has declined by about 38 percent since the first publication of this quality measure. Other measures, however, show no discernable trend toward improvement, suggesting that the impact of public reporting, to the extent it is a factor in these trends, is not uniform (Dembner and Debman 2004; Zinn et al. 2005).

Thus, nursing homes appear to be selectively choosing whether and how to respond to public disclosure of their performance with respect to quality. These choices may be conditioned on a number of factors. For example, performance on quality measures has been shown to vary with organizational characteristics, such as size, ownership status, chain affiliation, occupancy rate, and whether a facility is free standing or hospital based (Zinn et al. 2005). Prior decisions with respect to strategic positioning and resource allocation may also determine whether and how facilities respond to quality measure publication. In keeping with the principal of equifinality (Doty, Glick, and Huber 1993) more than one strategy can be successful in a given environment, providing the firm acts consistently with that strategy. This is the premise behind configurational approaches that typically employ typologies that capture major strategic commonalities (Thomas and Ramaswamy 1996).

One of the better known examples of the configurative approach, the Miles and Snow typology, has been the subject of extensive theoretical and empirical examination (Hambrick 1983; McDaniel and Kolari 1987; Shortell and Zajac 1990; Zahria and Pierce 1990). Researchers have found strong and consistent support for the typology in a wide array of settings, including hospitals, health maintenance organizations, colleges, banks, life insurance companies, and manufacturing industries (Hambrick 2003). In evaluating its reliability and validity, Shortell and Zajac (1990) concluded that "researchers can use this typology with increased confidence in future work on organizations and their strategies" (p. 830). However, despite its potential relevance for understanding nursing home resource allocation decisions affecting the quality of care, there has been virtually no application of this typology in the analysis of nursing home strategic behavior (Davis, Brannon, and Zinn 2001;

Castle 2003). This study contributes to the knowledge base in this area by assessing whether differences in strategic orientation, as identified by the Miles and Snow typology, are associated with differences in nursing home response to the publication of quality measures on the Nursing Home Compare website.

THEORY AND HYPOTHESES

Of the several strategy classification systems introduced over the last few decades, the Miles and Snow (see Miles et al. 1978) typology has been among the most enduring, the most scrutinized, and the most used (Hambrick 2003). Drawing on research in sociology, organizational theory, and behavioral sciences, this typology views the organization as a complete and integrated system in dynamic interaction with its environment (McDaniel and Kolari 1987). Miles and Snow developed a set of three viable strategic types (Prospectors, Defenders, and Analyzers), each displaying an internally consistent set of attributes. For example, a firm following a Prospector strategy frequently adds to and changes its products and services, consistently attempting to be first in the market. Such a firm tends to stress innovation and flexibility in order to respond quickly to changing market conditions. In contrast, a Defender's strategy is to offer a relatively stable set of products or services to defined markets, concentrating on doing the best job possible in its area of expertise. Defenders focus on doing core services well and efficiently by emphasizing tight control and operating efficiencies to lower costs. These differences in strategic emphasis are reflected in differences in the basis for competition. Thus, Miles and Snow surmised that while Prospectors compete on innovation, Defenders would tend to compete on efficiency and service. Because they provide the greatest contrast across viable strategies, most studies compare Prospectors with Defenders (Hambrick 2003). Finally, an Analyzer's strategy is to maintain a relatively stable base of products and services while selectively moving into new areas of demonstrated promise, balancing efficiency and innovation. Thus, Analyzers pursue a follower strategy that blends characteristics of Prospector and Defender strategies. While these three strategic types were regarded as equally effective if consistently implemented, Miles and Snow also proposed a fourth strategic type—the Reactor—that was not considered viable. A Reactor essentially lacks a consistent strategy, vacillating from one strategy to another, responding to environmental pressures only when forced to do so. The Reactor position results when “management fails to

align strategy, structure, and context in a consistent fashion” that would have enabled the organization to follow one of the other three effective strategies (Hambrick 1983).

In this study, we hypothesize that nursing homes’ responses to the publication of quality performance measures will vary as a function of strategic type. For example, strategic type may influence both the likelihood and timing of responses to quality performance publication. Hambrick (1983) found that Prospectors’ emphasis on environmental scanning positions them to identify opportunities. Nursing home Prospectors, the most market oriented of the strategic types, may be more likely to view the introduction of quality report cards as an opportunity to attract private pay residents. Hence Prospectors, compared with Defenders, may be early respondents in an effort to gain first mover advantages. Defenders, on the other hand, value stability and consistency in pursuing best practices. Hambrick (1983) also found that the Defenders in his study did not engage in environmental scanning in order to seek out new opportunities. Compared with Prospectors, they may be less likely to react to the initial publication of these measures. These considerations provide the rationale for our first two hypotheses:

- H1:** Compared with Defenders, Prospectors will be more likely to respond immediately to the initial publication of quality measures.
- H2:** Compared with Prospectors, Defenders will be more likely to have no response to publication.

In addition to whether and when nursing homes respond to quality measure publication, strategic type may influence how they respond. Consistent with their market scanning orientation, Prospectors might be expected to be more entrepreneurial and risk taking. Hambrick (1983) found that Prospectors tend to devote more resources toward motivating, informing, and educating their customers. Compared with Defenders, Prospectors were found to have more complex coordination and communication mechanisms. McDaniel and Kolari (1987) found that Prospectors were more likely to engage in promotional activities such as advertising and public relations, and had greater reliance on market research. Thus, nursing home Prospectors are expected to be more aggressive in promoting good scores for marketing advantage, and diagnosing the reasons for poor scores. With respect to staffing, Prospectors were found to hire for broad skills and train for flexibility that enables them to implement changes that may be disruptive and risky in the short term (Raghuram and Arvey 1995). In the context of nursing home response to quality measure publication, these could entail changes in job

description or the focus of quality improvement program activities. These considerations provide the rationale for the following hypotheses:

- H3:** Compared with Defenders, Prospectors will be more likely to communicate with residents or their families in order to explain what the scores mean.
- H4:** Compared with Defenders, Prospectors will be more likely to investigate reasons for poor scores.
- H5:** Compared with Defenders, Prospectors will be more likely to revise job descriptions in response to quality measure publication.
- H6:** Compared with Defenders, Prospectors will be more likely to change priorities of quality programs.

Defenders, on the other hand, would be expected to react in ways consistent with efficiency, stability, and predictability. Miles and Snow argued that Defenders improve quality by refining their existing products—they “defend” their turf by continuously improving what they do rather than venturing into new areas (Miles et al. 1978; Hambrick 1983). Thus, Defenders may be more likely than Prospectors to invest in process improvements, such as technology or equipment designed to improve quality performance, rather than in new product or market development (Hambrick 2003). For example, special mattresses, while potentially a substantial investment, have been clinically demonstrated to reduce the incidence of pressure ulcers. This observation informs our final hypothesis with respect to the influence of strategic types on nursing home response to quality measure publication:

- H7:** Defenders will be more likely than Prospectors to invest in new technology or equipment.

METHODS

Data and Sample

We designed a survey to determine whether and how nursing homes responded to the publication of quality measures on the Nursing Home Compare website. Our survey was piloted with a small group of nursing home administrators (who hold the equivalent of the chief executive officer [CEO] position in other organizations) in New York State and California and subsequently revised based on the results of the pilot. We then surveyed administrators in a national 10 percent random sample (1,502 nursing homes) of all

facilities included in the first publication of the Nursing Home Compare report that had at least one reported quality measure. The survey was conducted in May and June 2004. Of the 1,502 nursing homes surveyed, 724 responded, yielding a response rate of 48.2 percent. The response frequencies in a sample of this size estimate population frequencies with an accuracy of ± 1.8 percent or better. The response rates varied by region of the country and between for-profit and nonprofit facilities. Thus, in order to be nationally representative, the results we present are weighted for nonresponse. Survey data were merged with data on quality measures and organizational characteristics from the first publication (November 2002) on the Nursing Home Compare website.

Measures

Actions nursing homes could potentially take in response to federal publication of quality measures were derived from two sources. The first was the predictions of economic theory with respect to firm response to market changes that could impact on consumer choice and hence demand. From this perspective, publication exposed previously unrevealed differences in quality across nursing homes, reducing information asymmetries between providers and consumers. Empirical studies of how health care providers respond to publication of "report cards" in other health care settings such as "teaching to the test" (Gormley and Weimer 1999) were the other source. The initial list of potential actions was then revised based on the results of the survey pilot study. The response to our survey indicated that some potential actions were very rare. The low response rate for some actions precluded use in analysis, particularly as were trying to differentiate response by strategic type. Thus, in developing our hypotheses, we focused on responses that differentiated across strategic types and had a sufficient number of responses to allow for empirical testing.

The dependent variables used to test our hypotheses are dichotomous, constructed from responses to items in the administrator survey (a typical question can be found in Appendix B). They include whether or not:

- action was taken immediately after the first publication of the quality measures (Hypothesis 1)
- no action was taken in response to quality measure publication (Hypothesis 2)
- scores were explained to residents and their families in response to quality measure publication (Hypothesis 3)

- reasons for poor scores were investigated in response to quality measure publication (Hypothesis 4)
- job descriptions were revised in response to quality measure publication (Hypothesis 5)
- priorities of existing quality programs were revised in response to quality measure publication (Hypothesis 6)
- new equipment or technology was purchased in response to quality measure publication (Hypothesis 7)

The primary independent variables used to test the hypotheses were derived from the response to the self-identified strategic type item included in the administrator survey (see online Appendix B). Respondents were asked to identify the strategic type that best characterizes their facility by selecting the appropriate unlabeled description (online Appendix B). The descriptions were modified from those developed by Shortell and Zajac (1990) in their evaluation of the validity and reliability of the Miles and Snow typology. In that study, archival data validated hospital CEO self-typing, leading them to conclude that key informant perceptions of an organization's strategic orientation is a reasonable approach to identifying strategy. Four dichotomous variables were created for each of the four strategic types: Defender, Analyzer, Prospector, and Reactor.

Other variables were included in the models to control for factors that could influence nursing home response to quality indicator publication in addition to strategic type. For example, a number of studies have found differences in behavior and performance associated with ownership status, which may reflect differences in organizational mission (Aaronson, Zinn, and Rosko 1994; Spector, Seldon, and Cohen 1998; Angelelli et al. 2003; Harrington et al. 2001). While for-profits are presumably the most market-oriented providers and would be expected to respond promptly to publication of the quality measures, nonprofits subsidized through religious or fraternal affiliation may be in a better position to actually do so. For that reason, we have no *a priori* prediction of the direction of the association between ownership status and response to quality measure publication. Similarly, chain affiliation can signify greater resource availability, particularly access to capital that could provide flexibility in responding to quality measure publication (Greene and Monahan 1981; Harrington et al. 2001). We constructed dichotomous variables to represent for-profit status and chain membership. Prior analysis indicated that in general facilities with poor scores are more likely to react to

Table 1: Means of Variables Included in the Models

	Mean
<i>Dependent variables (range: 0, 1)</i>	
Action was taken immediately after the first publication of the quality measures	0.37
No action was taken in response to quality measure publication	0.30
Scores were explained to residents and their families in response to quality measure publication	0.26
Reasons for poor scores were investigated in response to quality measure publication	0.63
Job descriptions were revised in response to quality measure publication	0.11
Priorities of existing quality programs were revised in response to quality measure publication	0.42
New equipment or technology was purchased in response to quality measure publication	0.13
<i>Independent variables (range)</i>	
Prospector (0, 1)	0.19
Defender (0, 1)	0.42
Analyzer (0, 1)	0.33
Reactor (0, 1)	0.06
For-profit status (0, 1)	0.49
Chain affiliation (0, 1)	0.50
Number of measures in bottom 20% (0–6)	1.41
Perceived competition (0–5)	3.90

these scores compared with facilities with average or better than average scores. For each facility, we calculated the number of quality measure scores that fell into the bottom 20 percent of the state score distribution. In the model estimating the likelihood of acquiring new equipment/technology in response to quality measure publication we also included two variables representing differences in the ability to acquire capital: size (number of beds) and a dichotomous variable indicated whether the facility was hospital based. Finally, the degree of competition is a market-level variable that could influence nursing home response. To measure perceived competition, we included a variable in the survey that asked administrators to rate the intensity of competition in their local market on a scale from 1 (lowest competition) to 5 (highest competition). Descriptions and summary statistics for all independent variables included in the models can be found in Table 1. The highest correlation among the independent variables was 0.41, indicating that the presence of collinearity is not an issue (analysis available on request).

Statistical Methods

The LOGISTIC procedure available in *Stata* (2003) was used to predict each of the dichotomous outcomes with respect to nursing home response to quality

measure publication, along with the Huber–White sandwich estimator of variance to adjust for clustering of observations within states. Depending on the hypothesis tested, either the Defender or the Prospector type was excluded from the analytical models.

RESULTS

Table 1 presents summary statistics for the variables included in the analytical models. Miles and Snow (see Miles et al. 1978) suggested that Defenders, Analyzers, and Prospectors would be distributed about equally in an industry, and that these types would be more prevalent than Reactors. Consistent with prior studies (e.g., Hambrick 1983; Zahria and Pierce 1990), the distribution within our sample was significantly different. About 43 percent of surveyed administrators self-typed as Defenders, followed by Analyzers (33 percent) and Prospectors (19 percent). However, the least self-selected strategic type was the Reactor (6.6 percent).

While 37 percent of the sample took action immediately after the initial publication of the quality measures, almost 30 percent took no action at all. The actions most frequently undertaken were the investigation of reasons for poor scores (63 percent) and the focusing of existing quality assurance and quality improvement programs to address poor quality scores (42 percent). For many facilities, these programs are the mechanisms for instituting change. In general, more conservative responses to quality measure publication were chosen over the more consequential. Thus, while 63 percent of nursing homes indicated investigating reasons for poor scores, only 11 percent revised job descriptions as a result of quality measure publication.

Table 2 provides some insight into differences across strategic types with respect to organizational characteristics. Compared with other strategic types,

Table 2: Organizational Characteristics by Strategic Type (Percentages)

	<i>Defenders</i>	<i>Analyzers</i>	<i>Prospectors</i>	<i>Reactors</i>
For-profit	50	40	62	41
Chain	48	45	62	46
< 100 beds	60	60	49	61
No quality measures in lowest quintile	33	27	35	23
High perceived competition	33	32	52	41
Hospital based	15	11	5	13

Prospectors are more likely to be for-profit and chain affiliated, and to perceive higher competition in their local market. Prospectors are less likely to be relatively small (fewer than 100 beds) or to be hospital based. However, Prospector quality of care, defined as having no scores in the bottom 20 percent of the quality measure distributions, is similar to that of Defenders.

In general, the results of the regression models indicate differences in response to quality measure publication by strategic type (Table 3). For example, compared with Defenders, Prospectors are 58 percent more likely to respond immediately after the first quality measure reporting period (Hypothesis 1). Reactors are 74 percent less likely to respond after the first reporting period, compared with Defenders. While Analyzers were also positively associated with immediate response, this relationship was not as strong as for Prospectors. With respect to other variables in the model, higher perceived competition was associated with a greater likelihood of immediate response. However, for-profit status reduced the odds of immediate response by 38 percent. Chain status and initial quality had no effect on initial response.

Hypothesis 2 was also supported. Compared with Prospectors, Defenders were 62 percent more likely to take no action. However, there was no significant relationship with the other strategic types. It is interesting to note that both poorer initial quality and higher perceived competition are associated with a significantly reduced likelihood of no action taken. Other variables in the model were not significant.

Hypothesis 3 was not supported by the results. While in the right direction, the coefficient for the Prospector variable is not significant. Thus, Prospectors are not significantly more likely than Defenders to communicate with residents or families. However, it is notable that facilities located in markets with higher perceived competition are 37 percent more likely to explain scores to residents or families. There is a modest effect ($p = .065$) associated with chain affiliation, possibly reflecting a corporate mandate with respect to communication with residents and their families.

Relative to Defenders, both Prospectors and Analyzers were more likely to investigate the reasons for poor scores (Hypothesis 4). Prospector status increased the likelihood by 59 percent, and Analyzer status made investigation 54 percent more likely. Poor performance also appears to motivate this response. Facilities with more quality measures in the bottom 20 percent of the state distribution of scores were significantly more likely to investigate. While there was a marginally significant association with for-profit status ($p = .096$), the rest of the variables in this model were not statistically significant.

Table 3: Odds Ratios Results of Logistic Regression Analyses (Standard Errors in Parentheses)

	1. <i>Immediate Response to Publication</i>	2. <i>No Response to Publication</i>	3. <i>Communicate Meaning of Scores</i>	4. <i>Investigate Reasons for Poor Scores</i>	5. <i>Revise Job Descriptions</i>	6. <i>Change Priorities of Programs</i>	7. <i>Invest in New Technology</i>
Defender	Reference category	1.62* (0.34)	Reference category	Reference category	Reference category	Reference category	Reference category
Prospector	1.58** (0.26)	Reference category	1.49 (0.33)	1.59* (0.38)	2.02** (0.59)	1.89*** (0.32)	1.63+ (0.43)
Analyzer	1.39* (0.23)	0.96 (0.21)	1.24 (0.30)	1.54* (0.27)	1.18 (0.36)	1.67** (0.30)	0.43 (0.35)
Reactor	0.26** (0.15)	1.54 (0.54)	0.98 (0.38)	0.64 (0.21)	0.52 (0.36)	0.84 (0.25)	1.57+ (0.40)
For-profit status	0.62** (0.12)	1.21 (0.23)	0.96 (0.14)	0.76+ (0.12)	0.84 (0.17)	0.95 (0.13)	1.11 (0.28)
Chain affiliation	0.93 (0.16)	1.17 (0.27)	1.49+ (0.30)	0.88 (0.15)	0.85 (0.22)	0.87 (0.19)	1.14+ (0.08)
Initial quality	1.05 (0.07)	0.89* (0.05)	1.10 (0.10)	1.14* (0.08)	1.21* (0.11)	1.10+ (0.06)	1.0 (0.002)
Bed size							1.11 (0.44)
Hospital based							1.10 (0.11)
Perceived competition	1.15* (0.07)	0.79*** (0.06)	1.37*** (0.13)	1.13 (0.09)	1.21+ (0.15)	1.01 (0.08)	668
Number of observations	591	666	666	666	666	666	21.64***
Wald's χ^2	59.71***	35.09***	30.63***	26.75***	21.14**	36.39***	0.461
Hosmer–Lemshaw p -value	0.224	0.693	0.481	0.605	0.803	0.420	87.9%
Percent observed correctly classified	62.5%	68.5%	74.5%	64.0%	89.2%	61.0%	

+ $p < .10$,
* $p < .05$,
** $p < .01$,
*** $p < .001$.

Results indicate that Prospectors are twice as likely to revise job descriptions in response to quality measure publication when compared with Defenders, supporting Hypothesis 5. In addition, facilities with more poor scores relative to others in the state were more likely to revise job descriptions. There was a marginally statistically significant association with greater competition ($p = .097$), but no other variables in the model were significant.

Prospectors are almost twice as likely and Analyzers 67 percent more likely to change priorities of existing quality programs when compared with Defenders (Hypothesis 6). Facilities with a larger number of scores in the bottom 20 percent of their state's score distribution were also more likely to change quality program priorities, but the association is only moderately significant ($p = .088$). None of the remaining variables in the model were statistically significant.

Finally, Hypothesis 7, arguing that Defenders would be more likely than Prospectors to invest in equipment or technology in response to quality measure publication, was not supported by our results. Compared with Prospectors, Analyzers were more likely to invest, but the significance of the effect was moderate ($p = .060$). For-profit status ($p = .06$) and poorer initial quality ($p = .060$) were both associated with greater likelihood of investment in new technology/equipment in response to quality measure publication. None of the remaining variables were statistically significant.

DISCUSSION

The analysis we present here demonstrates that the strategic orientation of nursing homes is an important determinant of whether, when, and how they react to an environmental shock—the publication of a quality report card. Consistent with other studies that have found that change is used by Prospectors to gain advantage over competitors (McDaniel and Kolari 1987), Prospectors are more likely than Defenders to respond immediately to publication. In view of their greater reliance on market research and environmental scanning, it is not surprising that they were more likely to investigate reasons for poor scores. They were also more likely to change quality program priorities and revise job descriptions in response to quality measure publication. The latter is particularly notable because this action was rarely undertaken by facilities in our sample. However, it is consistent with findings that Prospectors favor flexibility in staff hiring and training (Raghuram and Arvey 1995) that may facilitate modifications in staff responsibilities.

Yet, there was no difference across strategic types with respect to communicating the meaning of the scores to residents and their families. This may be because there is no perceived advantage for Prospectors (or any other strategic group) to do so. Only a small minority of administrators surveyed had ever received inquiries regarding their facility's quality measures. Lacking public awareness, there may be no incentive to create it, particularly if facility performance is poor relative to competitors.

As theory would predict, Defenders were more likely to take no action at all with respect to quality measure publication. However, they were not found to be more likely to invest in process improvement through purchase of specialized technology or equipment. If the published scores were perceived as satisfactory, then there may have been no incentive for Defenders to change the status quo.

While Miles and Snow (see Miles et al. 1978) viewed the three effective strategic types to be distinct, it has been argued that Analyzers are more similar to Prospectors than they are to Defenders (McDaniel and Kolari 1987). Our results provide some support for that contention. Like Prospectors, Analyzers were significantly more likely than Defenders to respond immediately to quality measure publication and to change priorities of quality programs. However, unlike Prospectors, they were not more likely than Defenders to revise job descriptions. Apparently, with respect to this potentially more consequential action, Analyzers fall in step with Defenders.

Contrary to theoretical expectations, the distribution of facilities across the three "effective" strategic types was not equal. Defenders outnumbered Prospectors by two to one. The distribution across strategic types may be industry specific. For example, a study of banks found an even distribution across strategic types (James and Hatten 1995), while a study of hospitals found that Prospectors outnumbered Defenders by three to one (Shortell and Zajac 1990).

The association between response and some of the control measures are worthy of note. For example, greater perceived competition increased the likelihood of immediate response and decreased the likelihood that no action will be taken. Greater perceived competition also increases the likelihood of communicating the meaning of scores to residents and families. Thus, in the face of competition, all facilities are motivated to take action, regardless of strategic type. Poorer scores for the initial reporting period also appear to motivate action. Reduced likelihood of no response, and increased likelihood of investigating reasons for poor scores, revising job descriptions, and, albeit more modestly, of changing quality program priorities and investing in new

technology or equipment are all associated with poorer initial scores. Thus, it appears that publication of federally reported quality measures, at least with respect to these responses, is having the desired effect of motivating facilities to take action to improve quality scores.

These findings should be considered in context, however. Most importantly, it should be recognized that they are based on self-reports by nursing home administrators and may, therefore, be subject to response bias. While the survey was anonymous, there is a possibility that respondents will try to present themselves in a favorable light. However, given the high percentage of respondents who admitted to doing nothing in response to publication of federally reported quality measures, it seems unlikely that this is a topic that promotes this form of response bias.

In summary, this study supports many of the predictions of the Miles and Snow typology with respect to how different strategic types compete. As predicted, Prospector nursing homes were the most responsive to potential marketing opportunities posed by quality performance publication, while defenders were more likely to have no reaction. Analyzers, as proposed by theory, occupy a strategic middle ground, sometimes behaving like Prospectors and other times Defenders. The findings also suggest further avenues for research, such as what prompts an Analyzer to assume a more proactive strategic posture. In addition, because Prospectors did not take all of the actions predicted by our hypotheses, the circumstances under which Prospectors prioritize responses through selection and timing would be of interest. Finally, whether changes in resident mix (with increasing proportions of short-stay residents) influence the responsiveness of nursing homes with respect to specific quality measures (short- versus long-stay resident measures) may merit further study.

Yet, contrary to theory, we did not find a rough equivalence across effective strategic types. The dominance of the Defender strategy may reflect the highly regulated nature of the nursing home industry, and may have implications for the effectiveness of market-based policy approaches to quality improvement. Defenders are slower to respond to market incentives. Prospectors are more likely to respond to market incentives, such as publication of quality measure scores, but they appear to be a minority in this industry. In addition to other factors (including insufficient reimbursement), the dominant strategic orientation in this industry may be one reason why quality has been so slow to improve. However, evidence suggests that organizations are not totally inflexible with respect to shifting strategies in response to environmental change, and that policy reform that promotes change may shift the

distribution of strategic types in a given industry. Zajac and Shortell (1989) found that 55 percent of the hospitals in their sample changed strategy after PPS implementation, with many more hospitals pursuing Analyzer and Prospector strategies, and substantially fewer a Defender strategy. Defenders were the group most likely to change strategy. Thus, the introduction of reforms that encourage a Prospector orientation may be one way to speed the process. The optimal choice of reforms could be direct in nature (e.g., pay for performance, enhanced Quality Improvement Organization [QIO] initiatives) or indirect (stimulating competition in local markets). For example, QIO focus on resident pain may have been a contributing factor to improvement on this QM over time (Rollow, Lied, and McGann 2006). Whether market-based approaches shift the distribution across strategic types is an important question for future research.

ACKNOWLEDGMENT

This research was funded through National Institute of Aging Grant AG023177.

REFERENCES

- Aaronson, W., J. Zinn, and M. Rosko. 1994. "Do For-Profit and Not-for-Profit Facilities Behave Differently?" *Gerontologist* 34: 775–86.
- Angelelli, J., V. Mor, O. Intrator, Z. Feng, and J. Zinn. 2003. "Oversight of Nursing Homes: Pruning the Tree or Just Spotting Bad Apples?" *Gerontologist* 43 (special issue II): 67–75.
- Castle, N. 2003. "Strategic Groups and Outcomes in Nursing Facilities." *Health Care Management Review* 28 (3): 217–27.
- Davis, J. A., D. Brannon, and J. Zinn. 2001. "Strategy, Structure and Performance in Nursing Facilities." *Advances in Healthcare Management* 2: 291–314.
- Dembner, A., and B. Debnar. "Nursing Homes Show Uneven Gains: National Effort at Grading Has Mixed Results." *Boston Globe*, December 13, 2004.
- Doty, D. H., W. Glick, and G. Huber. 1993. "Fit, Equifinality and Organizational Effectiveness: A Test of Two Configurational Theories." *Academy of Management Journal* 36 (6): 1196–250.
- Gormley Jr, W. T., and D. L. Weimer. 1999. *Organizational Report Cards*. Cambridge, MA: Harvard University Press.
- Greene, V. L., and D. J. Monahan. 1981. "Structural and Operational Factors Affecting Quality of Patient Care in Nursing Homes." *Public Policy* 29: 399–415.

- Hambrick, D. C. 1983. "Some Tests of the Effectiveness and Functional Attributes of Miles and Snow's Strategic Types." *Academy of Management Journal* 26 (1): 5-26.
- . 2003. "On the Staying Power of Defenders, Analyzers and Prospectors." *Academy of Management Executive* 17 (4): 115-8.
- Harrington, C., S. Woolhandler, J. Mullan, H. Carillo, and D. Himmelstein. 2001. "Does Investor-Ownership of Nursing Homes Compromise the Quality of Care?" *American Journal of Public Health* 91:197: 1451-5.
- James, W., and K. Hatten. 1995. "Further Guidance on the Validity of the Self-Typing Paragraph Approach: Miles and Snow Strategic Archetypes in Banking." *Strategic Management Journal* 16 (2): 161-8.
- Johnson, C. E., A. Dobalian, J. Burkhard, D. K. Hedgecock, and J. Harman. 2004. "Predicting Lawsuits against Nursing Homes in the United States, 1997-2001." *Health Services Research* 39 (6): 1713-32.
- McDaniel, S. W., and J. W. Kolari. 1987. "Marketing Strategy Implications of the Miles and Snow Strategic Typology." *Journal of Marketing* 51: 19-30.
- Miles, R. E., C. C. Snow, A. D. Meyer, and H. J. Coleman. 1978. "Organizational Strategy, Structure and Process." *Academy of Management Review* 2: 546-62.
- National Center for Health Statistics. 2005. *Health, U.S. 2005*. Hyattsville, MD: National Center for Health Statistics.
- National Quality Forum. 2004. *National Voluntary Consensus Standards for Nursing Home Care: A Consensus Report, NQFCR-06-04*. Washington, DC: National Quality Forum.
- Raguram, S., and R. Arvey. 1995. "Business Strategy Links with Staffing and Training Practices." *Human Resources Planning* 17 (3): 55-73.
- Rollow, W., T. R. Lied, and P. McGann. 2006. "Assessment of the Medicare Quality Improvement Organization Program." *Annals of Internal Medicine* 145: 342-53.
- Shortell, S. M., and E. J. Zajac. 1990. "Perceptual and Archival Measures of Miles and Snow's Strategic Types: A Comprehensive Assessment of Reliability and Validity." *Academy of Management Journal* 33 (4): 817-32.
- Spector, W. D., T. M. Seldon, and J. W. Cohen. 1998. "The Impact of Ownership Type on Nursing Home Outcomes." *Health Economics* 7: 639-53.
- Thomas, A. S., and K. Ramaswamy. 1996. "Matching Managers to Strategy: Further Tests of the Miles and Snow Typology." *British Journal of Management* 7: 247-61.
- U.S. Department of Health and Human Services, Health Care Financing Administration (USHCFA). 2000. *Report of Congress: Appropriateness of Minimum Nurse Staffing Ratios in Nursing Homes. Executive Summary*. Washington, DC: Health Care Financing Administration.
- Wheeler, L. 2003 "Nursing Home Enforcement Efforts Questioned." *USA Today*, May 19.
- Winzelberg, G. S. 2003. "The Quest for Nursing Home Quality: Learning History's Lessons." *Archives of Internal Medicine* 163 (21): 2552-6.
- Zahria, S. A., and J. A. Pierce. 1990. "Research Evidence on the Miles-Snow Typology." *Journal of Management* 16 (4): 751-68.

- Zajac, E. J., and S. M. Shortell. 1989. "Changing Generic Strategies: Likelihood, Direction and Performance Implications." *Strategic Management Journal* 10: 413–30.
- Zinn, J. S., W. D. Spector, L. Hsieh, and D. B. Mukamel. 2005. "Do Trends in the Reporting of Nursing Home Compare Quality Measures Differ by Nursing Home Characteristics?" *Gerontologist* 45: 720–30.

SUPPLEMENTARY MATERIAL

The following supplementary material for this article is available online:

Appendix A. Description of Quality Measures on the Nursing Home Compare Website.

Appendix B. Sample Survey Questions.

This material is available as part of the online article from: <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1475-6773.2007.00781.x> (this link will take you to the article abstract).

Please note: Blackwell Publishing is not responsible for the content or functionality of any supplementary materials supplied by the authors. Any queries (other than missing material) should be directed to the corresponding author for the article.