Specialty hospital market proliferation: Strategic implications for general hospitals

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Background: Since the early 1990s, specialty hospitals have been continuously increasing in number. A moratorium was passed in 2003 that prohibited physicians’ referrals of Medicare patients to newly established specialty hospitals if the physician has ownership stakes in the hospital. Although this moratorium expired in effect in 2007, many are still demanding that the government pass new policies to discourage the proliferation of specialty hospitals.

Purpose: This study aimed at examining the regulatory and environmental forces that influence specialty hospitals founding rate. Specifically, we use the resource partitioning theory to investigate the relationship between general hospitals closure rates and the market entry of specialty hospitals. This study will help managers of general hospitals in their strategic thinking and planning.

Methodology: We rely on secondary data resources, which include the American Hospital Association, Area Resource file, census, and Center for Medicare and Medicaid Services data, to perform a longitudinal analysis of the founding rate of specialty hospital in the 48 states. Specifically, we use the negative binomial generalized estimating equation approach available through Stata 9.0 to study the effect of general hospitals closure rate and environmental variables on the proliferation of specialty hospitals.

Findings: Specialty hospitals founding rate seems to be significantly related to general hospitals closure rates. Moreover, results indicate that economic, supply, regulatory, and financial conditions determine the founding rate of specialty hospitals in different states.

Practice Implications: The results from this study indicate that the closure of general hospitals creates market conditions that encourage the market entry of specialized health care delivery forms such as specialty hospitals. Managers of surviving general hospitals have to view the closure of other general hospitals not just as an opportunity to increase market share but also as a threat of competition from new forms of health care organizations.

Key words: general hospitals, hospital market, organizational ecology, organizational forms, resource partitioning, specialty hospitals, strategic thinking

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DOI: 10.1097/HMR.0b013e3181e04a06

Changing population demographics, advances in medical technology, higher patient expectations and involvement, physicians’ need for more autonomy, and shifting environmental resources are all reshaping our health care industry. Specialty hospitals have recently emerged as an alternative to the long-standing model of the general nonprofit hospital. Although specialty hospitals in the form of psychiatric and children’s hospitals existed long before the 1990s, the specialty hospitals that are reshaping the hospital industry and, for some time now, are provoking much controversy are different. These hospitals are mostly physician owned, for profit, and like “focused factories” concentrate mainly on the following specialties: orthopedics, cardiology, and surgery. We refer to these as small specialty hospitals (SSHs) to differentiate them from
Specialty hospitals that existed before the 1990s such as psychiatric and children’s hospitals. In this article, we will follow the terminology of Carey et al. (2008). Proponents of SSHs argue that through specialization, these hospitals provide higher quality and lower cost of medical services (Barro, Huckman, & Kessel, 2005; Mitchell, 2007; Swartzmeyer & Killoran, 2004). Opponents argue that physician ownership provides physicians with incentives to refer to their own hospitals, cherry-pick patients, and induce demand for certain services (American Hospital Association [AHA], 2004; Iglehart, 2005). Moreover, opponents argue that these SSHs hinder general hospitals’ ability to benefit their communities through uncompensated care because SSHs compete with them on their most profitable services and hence alter their ability to subsidize uncompensated services (Foster, 2005). This controversy induced policymakers to slow the proliferation of SSHs through a moratorium passed in 2003 and extended until 2007. This moratorium prohibits physicians from referring their Medicare patients to SSHs where they have ownership stakes.

Although much research has been done to examine the effect of SSHs on the quality of care, cost, and the well-being of neighboring general hospitals (Barro et al., 2005; Chollet et al., 2006; Cram, Vaughan-Sarrazin, Wolf, Katz, & Rosenthal, 2007; Greenwald et al., 2006; Moore & Coddington, 2005; Nallamothu et al., 2007; Schneider et al., 2007; Woods, O’Connor, & Pierce, 2005), previous research has not examined the environmental resources and market conditions that have led to the emergence of these hospitals. In this article, we investigate the factors that influence the founding rate of specialty hospitals. This is especially important for general hospitals managers because anticipating future competition from specialized health care delivery organizations is critical for their strategic planning.

This study analyzes the founding rate of SSHs by investigating the effect of general hospital closures and changes in environmental resources at the industry level on the population growth of specialty hospitals. SSHs are a newly emerging organizational form of hospitals. In addition to ambulatory surgery centers and long-term care hospitals, SSHs are an extension of a current trend in the health care services industry where we are witnessing a shift away from the traditional “do-it-all” hospital model to a “focused factory” model. The emergence of specialized organizations is not unique to the health care industry in that it is a common phenomenon in mature industries (Swaminathan, 1995). Because the proliferation of these specialized organizational forms is perceived as a serious threat by general hospitals (AHA, 2004), understanding the forces and conditions that encourage the proliferation of SSHs is essential for general hospital managers.

In this study, we deploy the organizational ecology perspective to understand the proliferation of specialty hospitals. More specifically, we build on the resource partitioning theory to examine the relationship between general hospital closures and the growth of the SSHs population. Rather than studying organizations at a microlevel and thus focusing on individual decisions of organizations, organizational ecology deploys a macro perspective, with a focus on populations of organizations, how they come into being, interact, grow, change, and die. Resource partitioning theory, one of the main tenets of organizational ecology, was developed by Carroll (1985) to explain birth and mortality rates of specialist organizations in mature industries.

In this article, we examine trends in the growth of the specialty hospital population to help general managers predict the market entry of SSHs and thus be more strategically prepared. Moreover, we examine the impact of environment, institutional, and economic factors on the proliferation of SSHs and explain variations in the founding rate of SSHs between different states. For our analysis, we use longitudinal data from the AHA Annual Survey Database, Area Resource File, U.S. Census, and Center for Medicare and Medicaid Services to examine the proliferation rate of specialty hospitals.

Conceptual Framework

The organizational ecology perspective is a theoretical framework that explains the evolution of organizations by determining how the environment affects the birth, survival, and death of different organizational forms (Hannan & Freeman, 1987). New organizational forms arise to fill niches in the environment. Organizations with the same form depend on the same resources, and together, they form an organizational population (Lazzeretti, 2006). Generalist organizations occupy the wide niches, whereas specialists occupy unfilled narrow niches (Carroll, 1985).

Resource partitioning theory has gained popularity because unlike industrial economic theories, it accounts for different organizational forms (Lomi, 1991). Industrial economics argues that concentrated markets discourage the market entry of new organizations without taking into consideration that the heights of entry barriers vary with organizational form. However, the proponents of resource partitioning theory argue that although concentrated generalists markets discourage other generalist organizations from entering the market, it actually encourages the proliferation of specialist organizations. Thus, resource partitioning differentiates between the effect of market concentration on generalist and on specialist organizations.

Resource partitioning theory explained the proliferation of specialist organizations in a variety of industries.
(Boone & Van Witteloostuijn, 1995). In this article we extend resource partitioning theory to the hospital industry to understand the dynamics between general hospitals and SSHs proliferation. When applied to the hospital industry, the theory would argue that when competition between general hospitals is very strong, small general hospitals will not survive, mainly due to economies of scale. The high closure rate of general hospitals will then signal unfavorable environmental conditions for general hospitals interested in entering the market and thus discourage them. However, because SSHs focus on one or two service lines, they do not compete with general hospitals on all services, and thus they can benefit from economies of scale and be more competitive than general hospital in that specific service line. Therefore, we predict that founding rate of SSHs in a state is positively related to the closure of general hospitals.

Environmental forces such as state regulations, specialist physician supply, expenditures per physician, state per capita income, and unemployment rate impact the entry of hospitals into a market (Dyehouse, 1989; Ruef, Mendel, & Scott, 1998). Therefore, in this article, we examine the effect each of these variables has on the proliferation of specialty hospitals. Consistent with previous research, we predict that a Certificate of Need (CON) program, state unemployment rate, and state-level expenditures per physician will have a negative effect on the founding rate of specialty hospitals. However, specialist physicians’ supply and state per capita income will have a positive effect. Organization founding rate is likely to be influenced by the level of institutional support for that organizational population. Swaminathan (1998) summarized three types of institutional support: government regulation (Carroll & Swaminathan, 1989), policies and laws that shape industrial competition in certain ways (Barnett & Carroll, 1993), or economic incentives that encourage entrepreneurs (Tucker, Singh, & House, 1988). In an effort to control the escalating costs of health care services, Federal Public Law 93-641, part of the Health Planning and Resource Development Act of 1974, was passed requiring hospitals to obtain a CON before they can construct or expand their facilities or services and before they can acquire new equipment. After 1978 and during the 1980s, most states had some form of a permit or CON requirement for health care facilities to undergo expansion or construction. However, in 1986, President Reagan passed laws that encouraged states to drop their CON requirement, and consequently only 16 states have a CON or similar requirements now (Stepnick, 2003). The presence of a CON program in a state signals a lack of institutional support for new market entrants, especially for those with new specialized organizational forms. Therefore, in this study, we predict that the presence of a CON program in a state will have a negative effect on SSHs founding rate.

Methodology

As is the case with other ecological studies, the data needed for this longitudinal analysis are obtained from secondary sources. SSHs founding rate is estimated from the AHA Annual Survey Database 1990 through 2005. Specialty hospital (as will be defined later) growth surged beginning in 1990, and the inclusion of earlier years’ data would be of limited benefit to this research. We only include hospitals that identify themselves as cardiac, surgical, orthopedic, and oncology hospitals. SSHs that are centers of excellence, belong to an academic medical center, and specialize in psychiatric, children, or long-term care are excluded. To obtain the true number of SSHs in each state in a given year, we retrieved data from state health departments, and we also did a thorough Web search to make sure all SSHs that started their operations between 1990 and 2005 were included in the study. State health departments provided us with the names and description of hospitals that received a licensure to operate each year from 1990 to 2005. We searched the Web using the following terms cardiac hospital, surgical hospital, orthopedic hospital, and cancer hospital, in addition to the names of the states we knew from the General Accounting Office report had specialty hospitals. We then compiled a list of SSHs operating in each year in each state and were able to calculate the number of new SSHs per year per state.

The number of specialist physicians per 100,000 residents, unemployment rate, and state per capita income are derived from the Area Resource File. Physician expenditures in each state per year are obtained from the Center for Medicare and Medicaid Services. Finally, the CON program data are derived from the American Health Planning Association. This analysis includes only the 48 mainland states and excludes the following: Marshall Islands, Puerto Rico, Virgin Islands, Guam, American Samoa, Alaska, Hawaii, and Washington, DC. The unit of analysis in this study is state * year. Given that we have 48 states per year and the data extend from 1990 to 2005, that is, 16 years, this analysis includes 768 (48 * 16) data points. We choose state * year as our unit of analysis to be consistent with prior practice in organizational ecology research and also because regulations and insurance policies are set at the state level.

Variables. We used 1-year lagged values for all our independent and control variables. Because demand for health services is influenced by population size, in this study, we divide most of the variables by the population size in each state. Table 1 contains definitions and descriptive statistics for the variables included in this analysis.

Dependent Variable. Organizational founding rate of SSHs is the dependent variable in this study. We consider the year during which the hospital started its operations as
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influence the founding rate of SSHs is the number of
Association. Another important factor that is likely to
cause founding rates are likely to be influenced by the
Environmental and Institutional Variables.

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<tr>
<th>Variables</th>
<th>Measure</th>
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<tr>
<td><strong>Ecological variables</strong></td>
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<tr>
<td>General hospital closure rate&lt;sub&gt;t - 1&lt;/sub&gt;</td>
<td>The number of general hospitals that closed in year&lt;sub&gt;t - 1&lt;/sub&gt; per state</td>
<td>1.567</td>
</tr>
<tr>
<td>State-level average general hospital size&lt;sub&gt;t - 1&lt;/sub&gt;</td>
<td>The average number of short term general hospital beds in a state</td>
<td>198.69</td>
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<td><strong>Environmental variables</strong></td>
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<tr>
<td>Specialist physicians</td>
<td>Number of specialist physicians per 100,000 residents</td>
<td>71.92</td>
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<tr>
<td>State-level physician expenditure per 1,000 residents</td>
<td>Expenditures for physician per 1,000 resident in the state</td>
<td>177.07</td>
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<tr>
<td>State per capita income (thousands of constant dollar)</td>
<td>State per capital income in year t - 1</td>
<td>24.03</td>
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<tr>
<td>State-level unemployment rate</td>
<td>State unemployment rate in year t - 1</td>
<td>5.14</td>
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<tr>
<td>CON</td>
<td>A dummy variable (0 = if the state has no CON requirement, 1 = if the state has CON programs)</td>
<td>NA</td>
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Note. CON = Certificate of Need.

The founding date. Founding rate is defined as the number of new SSHs that started operating in a state each year between 1990 and 2005.

**Independent Variables.** State-level general hospital closure rate is used to test the resource partitioning theory. We derive the general hospital closure rate from the AHA Annual Survey database. We estimate state-level general hospital closure rates by the difference in the number of general hospitals between year t - 1 and year t. We exclude government and military hospitals from the study because they are less influenced by market forces and therefore might bias closure rates.

**Environmental and Institutional Variables.** Because founding rates are likely to be influenced by the presence of a CON program in a state, we include a dummy variable for CON (1 = yes, 0 = no). Data on states’ CON programs are derived from the American Health Planning Association. Another important factor that is likely to influence the founding rate of SSHs is the number of specialist physicians per 100,000 residents. The number of specialist physicians in an area reflects the intensity of demand for specialty services in a particular region and is predicted to have a positive effect on the founding of specialty hospitals.

Most SSHs are founded by specialist physicians. Therefore, it is important to understand the motives that drive specialists to open their own hospitals. Many have argued that the primary reason for physicians to open SSHs is financial gain. In this article, we test whether physicians’ expenditures per 1,000 residents affect the founding rate of specialty hospitals. Finally, economic variables such as per capita income and unemployment rate are known to influence a population’s ability to purchase medical insurance and health services (Kim & Cue, 2008). Thus, in this article, we control for both the state-level per capita income and state unemployment rate, we derive the data for both of these variables for each of the years included in the study from the Area Resource File.

**Estimation Approach.** Consistent with ecological research on the organizational founding process, the unit of analysis in this study is the state, and foundlings per year are treated as the events (Swaminathan, 1998) through which the specialty hospital population is produced (Amburgey & Carroll, 1984). Because the available data do not include the exact date of founding, the period or duration between foundlings cannot be calculated. Consequently, we follow the assumption of Hannan and Freeman (1989) and Swaminathan (1998) of a constant rate of organizational founding with log-linear dependence on covariates.

The histogram in Figure 1 confirms what has been reported in previous organizational ecology studies on the founding of new organizations, that is, the counts of foundlings are not normally distributed. Moreover, the number of new SSHs is highly skewed to the left, with a mean of 0.21 foundlings per state per year and a variance of 0.946. Because the variance is about 5 times the mean, the distribution of the number of new specialty hospitals indicates signs of overdispersion. Accordingly, the use of negative binomial regression is appropriate (Cameron &
In our model, we tested the effect of general hospitals closure rate on SSHs founding rate. We used GEE to test the model and specified an autoregressive within-participant correlation matrix. The GEE results are displayed in Table 2. The negative binomial analysis yielded results that provide strong support for the resource partitioning theory. General hospitals closure rate has a significant positive effect on SSHs founding rate ($p < .5$). This is consistent with our prediction that the closure of general hospitals frees resources in the market, which encourages SSHs market entry unlike what is generally predicted in industrial economic theory. States with a CON program had a lower rate of SSHs founding, which provides support to institutional theory. State average general hospital size and physician expenditures per 1,000 populations had a significant negative effect on founding rate. However, state per capita income has a positive significant effect on specialty hospital founding rate ($p < .05$). Both state unemployment rate and the supply of specialist physicians did not have any significant effect on SSHs founding rate.

### Summary and Discussion

The results from this analysis provide support to the resource partitioning theory. Resource partitioning theory argues that concentrated generalists markets have a negative effect on the market entry of new generalist organizations, however, they have a positive effect on the market entry of specialist organizational forms. This is due to the fact that when competition in the general hospital market is strong, due to limited resources, large general hospitals

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**Table 2**

<table>
<thead>
<tr>
<th>Determinants of specialty hospitals founding: negative binomial generalized estimating equations results</th>
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<tr>
<td><strong>Coefficient</strong></td>
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<tr>
<td>State unemployment rate</td>
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<td>State per capita income (1,000 of constant dollars)</td>
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<tr>
<td>Specialist physicians per 100,000 population</td>
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<tr>
<td>Physician expenditures per 1,000 population</td>
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<tr>
<td>CON program</td>
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<tr>
<td>State hospital closure rate</td>
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<td>State average general hospital size</td>
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*Note. CON = Certificate of Need.*

*p < .05. **p < .01. ***p < 0.001.*
outcompete smaller ones due to economies of scale. This will lead to a highly concentrated market, which will discourage new general hospitals from entering the market. Given that specialty hospitals focus on one or two service lines and thus like focused factories can benefit from economies of scale and better quality, they are not discouraged by concentrated general hospitals markets. In summary, the closure of general hospitals encourages the market entry of specialized forms of health care delivery organizations.

Our analysis also shows that regulatory and environmental forces influence the founding of specialty hospitals. The significant negative effect of CON on specialty hospitals founding rate provides support for institutional theory predictions, in that the presence of CON seems to discourage the proliferation of specialty hospitals. CON signals a strong regulatory environment and a lack of support for new market entrants, including hospitals with new organizational and ownership forms. This result is consistent with the findings of D’Aunno, Succi, and Alexander (2000) that CON programs have a negative effect on changing organizational templates.

Environmental forces, especially economic ones, influence the founding and death rates of organizations across a wide spectrum of industries. In health care, economic indicators such as per capita income and unemployment rates are proxy measures of a population’s ability to obtain health insurance and purchase health care services (Kim & McCue, 2008). The results indicate that specialty hospitals prefer states with higher per capita income, which is consistent with previous research on geographical variations in the distribution of health services.

The finding that specialty hospitals’ founding rate is negatively related to physician expenditure per 1,000 residents may reflect how financial circumstances affect organizational founding. Because there has been a lot of controversy surrounding physician ownership of specialty hospitals, this result does indicate that physicians are establishing their own specialty hospitals in states where they are being paid less. This finding provides some support that financial factors might be among the main drivers behind the proliferation of specialty hospitals, and this in turn may provide some support for the argument that physicians may be prone to make biased referrals and to cherry-pick their patients to increase their wealth. For hospital managers, this is especially important. Physicians have argued that these newly founded specialty hospitals provide them with more autonomy with regard to patient care. For example, it provides them with more flexibility in scheduling operations and procedures. Because financial incentives and more autonomy might be among the forces driving the physicians to open their own hospitals or other competing health care delivery organizations, managers should explore means of ensuring a healthy relationship with physicians by involving them in decision making and strategic planning and by periodically monitoring physician satisfaction to anticipate and resolve any potentially divisive issues.

### Practice Implications

In today’s health care industry, hospital managers have to be strategic thinkers that anticipate future threats and opportunities and equip their organizations with the means to face anticipated market changes. Stringent reimbursement schemes, nurse shortages, proactive consumers that no longer settle for the nearest hospital, and hard economic conditions all dictate that for general hospitals to survive, they have to be aware and prepared for forces that encourage the market entry of not just other general hospitals but also specialized health care organizations such as specialty hospitals.

The closure of other general hospitals has been long perceived by the surviving hospitals, usually large general hospitals, as an opportunity to increase market share. However, as our analysis shows, managers of general hospitals should be aware that high general hospitals closure rates encourage the market entry of specialized hospitals that benefit from the resources set free in the market by general hospital closures. Specialty hospitals also benefit from economies of scale and the potential better quality associated with providing only one service line such as cardiology.

Managers in markets that have high general hospitals closure rate should consider several preemptive strategies. For example, it might be feasible to open an SSH as a joint venture with physicians. Alternatively, they should ensure that their cardiology, surgery, or orthopedic departments have sustainable competitive advantages that attract insurers and potential patients to their hospital rather than newly established specialty hospitals. Finally, of utmost importance for general hospitals is to establish a strong relationship with physicians in their community. Although work satisfaction surveys have usually targeted hospitals’ nursing staff, periodic assessment of physician satisfaction with the hospital can help hospitals address physicians’ needs and complaints to prevent them from seeking alternatives to the general hospital environment.

### References


