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# How State Policy Affects Rural Hospital Consortia: The Rural Health Care Delivery System

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RURAL HOSPITALS LOCATED IN AREAS WITH FEWER than 2,500 residents face patient-base, financial, and regulatory difficulties. The American Hospital Association (AHA) has reported that rural hospitals with fewer than 50 beds have an average occupancy rate of 40 percent, compared with 55 percent for those of equivalent size in urban areas (Lutz 1988). During the 1980s rural discharges declined 17.6 percent versus an urban decline of 5.1 percent; inpatient days declined 27.6 percent in rural hospitals versus 15.2 percent in urban ones; and beds declined 6.3 percent in rural versus 1.3 percent in urban institutions (Ermann 1990). Because of this low volume, by 1987 the expenses of rural hospitals as a group were higher than their patient care revenues (Office of Technology Assessment 1990). Contributing to the financial woes are reduced Medicare and Medicaid payments compared with urban areas, maldistribution of physicians, and competition from urban hospitals. Over 200 rural hospitals closed during the 1980s, and one-fifth of those remaining open have been identified as prime candidates for closure (Kusserow 1989).

Rural hospitals are facing difficulties, yet they remain vital to their communities. In 1985, rural hospitals accounted for 20 percent of all major inpatient services, 20 percent of inpatient admissions, 17 percent of surgeries, and 19 percent of births (Moscovice et al. 1989). Rural hos-

pitals not only provide health care, but they also constitute a major economic, emotional, and symbolic community element. Because a rural community perceives its hospital as a source of pride and a focal point for community activity, it wants the hospital to remain autonomous.

In the past, the individual hospital was able to provide its residents with medical care and remain viable, but today the health care industry is more complex and is undergoing changes. Hospitals, especially rural hospitals, are lacking personnel, capital, and services. Competition from urban hospitals for the limited clients, personnel, capital, and technology is a contributing factor. As their environment (rural areas) becomes more uncertain, individual agencies (rural hospitals) look for stabilization and certainty in groups (Longest 1980). Multihospital arrangements, or consortia, have formed to improve the viability of rural hospitals. Because rural hospitals are open systems, under the jurisdiction of the state's policies, the policy effects of this new arrangement must be measured. Rural hospitals have realized that they must pull together rather than allow themselves to be pulled apart; many have discovered that they must change because they cannot afford to "go it alone" (Rosenblatt and Moscovice 1982).

## The Rural Hospital Consortia

When an organization is beset by scarce resources and must depend on others, a typical response is to enter into an affiliation. The consortium described here is a voluntary, cooperative arrangement, either of two or more hospitals, both rural and urban, or of hospitals joined with other health care entities, such as nursing homes, which unite to achieve some of the following advantages:

- recruitment of health personnel and provision of continuing education
- training in management and quality assurance methods
- greater influence on legislation while maintaining corporate identity and management structure

The study I describe in this article was an examination of consortia comprising two or more rural hospitals. Hospitals that are members of

the same system or that simply consult each other are not considered a consortium.

## The Significance of Consortia and the Need for Research

Consortia constitute a new area for organizational research that clearly needs empirical evidence. Currently, there are no available data on the development and characteristics of rural hospital consortia. In 1988, the Senate's Special Committee on Aging reported that little is known about the number, structure, and activities of rural hospital consortia (Christianson et al. 1990). Cochrane and Fourkas (1979) found that although older consortia were outgrowths of internal hospital conditions, the newer ones were activated by the regulatory environment; however, they did not mention which specific policies stimulated these formations. The behavior of organizations in the face of environmental changes and regulations affects the composition of the industry, as evidenced by the development of consortia; therefore, these regulations must be assessed. In the study described here, state health policies were examined to discover how they affected rural hospital consortia participation in states, and the following specific questions were asked:

1. What are the characteristics of rural hospital consortia in the 43 sampled states?
2. What are the effects of state policies (Medicaid, certificate of need [CON], and physician licensure) on rural hospital consortia participation?
3. What state policies stimulate or retard the formation of rural hospital consortia?
4. Why is participation by rural hospitals in consortia greater in some states than in others?

## Relevant Literature

Consortia represent a relatively new phenomenon; thus, the literature on them is scant. Their formation follows basic organization theories: Open

Systems Theory, the Population Ecology Model, Strategic Adaptation Theory, and Resource Dependency Theory. These theories attempt to explain why organizations, such as rural hospitals, behave as they do.

### *Organizational Theory Literature*

Traditionally, rural hospitals were "community-specific entities," employing and caring for community residents. Through the years, greater government, physician, and consumer involvement began to erode this privacy. A rural hospital is an open system, affected by and acting on its environmental elements; therefore, it must align its organizational structure with that of the external environment because the environment influences its internal structure, activities, and relations. Open Systems Theory posits that as environmental complexity increases, organizations like rural hospital consortia differentiate and restructure.

Because of their small size and low volume, solo rural hospitals are unable to withstand the environmental pressures; in certain areas, competition with urban hospitals results in duplication and high costs. Today rural hospitals will have to respond to changes both in the health care industry and in the rural environment. Approximately half of the country's rural hospitals have done this by joining consortia.

The research question presented here, How do state policies affect rural hospital consortia participation?, follows closely the Population Ecology Model Contingency Theory. This theory asks, To what extent do environmental features (such as policies) determine or constrain organizational behavior and form? (Hurley and Kaluzny 1987). It posits that because the environment "selects out" those organizations that are best suited to survive, it is in an organization's interest to be cognizant of its environment. Thus the behavior of organizations is largely determined by their environments. Depending on the environmental situation, namely, the effect of state policies, rural hospitals may decide to become "better suited" to their environments by undergoing strategic adaptation, an organizational process that involves adopting a new strategy in order to position itself more strongly for survival. Many independent rural hospitals have had to do this, thereby forming a basis for consortia. They are a new organizational form, christened when the rural environment became too threatening for many solo, rural hospitals to remain viable. The Population Ecology Model Contingency and Strategic Adaptation theories would describe the distressed rural environment as an in-

fluence on rural hospitals that changed their behavior, leading them to join consortia.

Organizations that cannot internally generate all of the resources needed to prosper establish relations with those on which they are dependent. D'Aunno and Zuckerman (1987), in their research on hospital federations, offer a critique of the utility of the Resource Dependency Model as it relates to hospitals. They posit that organizations alter their behavior in order to obtain resource needs from other organizations. Because most rural hospitals have neither the volume nor the financial leverage to purchase every piece of equipment, house every service, or recruit every specialist, they must depend on others to meet their resource needs. Hospitals in this situation adapt by developing cooperative ventures, such as consortia, to share and obtain scarce, critical resources. Resource Dependency Theory views the formation of interorganizational relations (consortia) as a mechanism to secure access to the resource needs of the single entity, to stabilize relations with the environment, and to survive (Zuckerman and D'Aunno 1990, 22).

A more complex and regulated environment, combined with declining resources, presents rural hospitals with an unstable future. Rural hospitals act in a consistent manner according to various organization theories. One way that rural hospitals react to the environment is by forming consortia, which can provide the rationale for organization change within the rural health care delivery system.

### *State Policy Literature*

Since the days of epidemics and quarantines in the 1800s, the state has assumed the major role of providing health care to its residents. The power of the state to regulate and disburse entitlements is probably the single most important means of controlling an environment (Perrow 1986). Nevertheless, the literature has paid insufficient attention to state policies, namely, Medicaid, certificate of need, and physician licensure and their effect on rural hospital operations (Kennedy and Dumas 1983). Greater attention is now being paid to the state (and federal) regulations affecting health care because of health care costs, the plight of the indigent, and access-to-care issues. With the increasing interest in and need for rural hospital legislation, empirical evidence, not merely hindsight, is called for.

### *CON Literature*

The majority of past studies on CON have focused on hospital expenditures (Joskow 1981). Although CON does not lower costs, it has continued as a planning regulation in many states. With the rural hospital's declining patient volume and access to capital, filing for a CON can be difficult. Here, paradoxically, the smaller, less financially stable hospitals are under more pressure, as they can neither justify the need nor afford the costs. A vicious cycle is thus created as poorer hospitals find it more difficult to develop potential revenue bases through enhanced services. Mullner's research on rural hospital closures examined whether the various services offered by rural hospitals puts them at risk of closure or protects them from it. The results indicated a definite association between the offering of certain services by rural hospitals and the risk of closure (Mullner 1990). Hospitals needing to open a "savior" service may be unable to afford the costly CON or may not have access to the capital required to open the service by themselves; this may encourage them to join consortia.

### *Medicaid Literature*

Literature on Medicaid encompasses two periods: the early period of free spending, from 1965 to 1980, and the later period of cost containment, from 1980 to the present. Current emphasis on cost containment has uncovered the "inequities" of Medicaid and how they affect hospital revenues, especially those of rural hospitals. Rural populations experience inequities in Medicaid distribution and rural hospitals face financial instability. The impact of Medicaid policies on these developments requires further study. To date, no direct association has been found between the cost-containment measures of Medicaid and hospital restructuring, although the rapid increase of hospital costs, compared with the rate of Medicaid payments, must be considered.

### *Physician Literature*

Physicians are the major "revenue centers" for hospitals. Reportedly, one rural physician employs 3.75 persons and may generate an additional 13 nonmedical jobs for the local economy (Cordes 1989). Kindig researched the supply of physicians in counties with populations under 10,000. Re-

sults indicated that although the physician-to-population ratio increased in rural areas between 1975 and 1985, the impact of this growth was minimal, especially when physician supply was compared with that of metropolitan areas (Kindig and Movassaghi 1989).

Although all states require a physician to be licensed, examination requirements vary. Economist Paul Feldstein views the licensure requirement as a "barrier to entry" because the requirements to practice are determined by the states (Feldstein 1983). Physician literature has focused on the issues of distribution and surplus, but has not explored the correlates to state licensure policies and hospital operation.

### *Consortia Literature*

To cope with and understand the proliferating and complex issues and regulations in the external environment, members from multiple institutions find it beneficial to pool their expertise. Consortia can assist hospitals to save time and money and to interpret and implement the numerous regulations by banding together in "interest group fashion," which also serves to increase the political strength of the rural health care delivery system (Alexander and Amburgey 1987). Rural hospitals, via consortia, find a way to understand and stabilize their interactions within the framework of state policies.

Although attention to rural hospitals has increased on the state and federal levels, there has been no national study of state regulation. Jewell noted that research is needed to identify the "forces" that distinguish states from each other. In the past, state studies were limited to the state that the researcher was in (Jewell 1982). Also, past state health policy research has used either small samples or aggregate hospital data that are seriously skewed by the inclusion of large urban hospitals. Finally, additional research is needed because rural areas are so diverse and the concept of consortia is still relatively new.

### *Hypotheses*

According to the literature, an entity can survive if it adapts to its environment; a major component of the rural hospital's external environment is regulation. In this section, I will examine the impact of



Medicaid, physician licensure, and CON on participation in consortia by rural hospitals.

### *Medicaid*

Medicaid will be tested because it exists in all states, except Arizona. Medicaid programs are also a significant portion of the state's health budget, consuming slightly more than half of all expenditures (Altman and Morgan 1983). The AHA has reported that, since 1984, small or rural hospitals have experienced increases in the proportion of revenues they receive from Medicaid (American Hospital Association 1988).

1. Although Medicaid coverage, expenditures, and reimbursements vary by state, most rural hospitals face financial difficulties. The rate of consortia participation in a state varies according to Medicaid spending per capita: when spending is less, participation is greater.
2. When the Medicaid coverage is more restricted (i.e., when the ratio of Medicaid recipients to persons in poverty is lower, the poverty population is higher), the financial instability of hospitals increases; thus, state participation in consortia is higher because hospitals join them for economic reasons.

### *Physician Licensure*

Medical manpower shortages are severe in rural areas. In 1985, the number of nonfederal physicians per 100,000 residents was below the national ration of 220 per 100,000 in all but two of 23 primarily rural states (American Hospital Association 1987). Here, the percentage of rural physicians per state will be measured, as will the stringency of the state physician licensure examination, using a dummy variable with three levels: stringent, flexible, and lenient. "Stringent" occurs if a state requires the Foreign Language Examination (FLEX) for all physicians and the Special Purpose Examination (SPEX) for physicians who have not been examined for four to ten years, depending on state or specialty requirements, or who have questionable records. "Flexible" occurs if a state allows a candidate to sit for the FLEX up to and including three times before additional education or training is required, and if the SPEX is not required. "Lenient" occurs if a state allows a candidate to sit for the

FLEX up to and including six times before additional education or training is required; this category also includes states that put no limit on the number of times one can take the examination and states in which the SPEX is not required. Finally, rural admissions will be measured. In the report by the U.S. Inspector General on hospital closures, respondents viewed decreased admissions as the main cause of declining occupancy, which in turn affects the hospital's financial condition. With low volume, rural hospitals may join consortia to consolidate services and lower costs (Kusserow 1989).

1. State control of the physician testing and licensure process means that the requirements vary across the country. The more stringent the state licensure law, as indicated by the greater number of required examinations to be completed in a shorter period of time, the more difficult it is to encourage physicians to gain a license in that state. This will result in higher state participation in consortia as hospitals take advantage of sharing the physicians who have been successfully recruited by the consortia hospitals.
2. When the percentage of rural physicians is lower, state participation in consortia correspondingly increases because rural hospitals will need to combine in order to share physician services.
3. Rural hospitals face financial hardships because of low patient volume and high fixed costs. When the percentage of admissions to rural hospitals is lower, the participation rate in rural hospital consortia is higher.

### *Certificate of Need*

Rural hospitals view the time and cost of CON filing as an unnecessary deterrent to renovation and construction. Are consortia more numerous in states where stringent CON policies (low capital expenditure thresholds) motivate them to share CON costs?

1. CON has regulated the hospital's ability to build and purchase technology. With CON, a limited number of each service is allowed in an area; thus, hospitals must share the service. When the scope of CON is broader (i.e., the lower the threshold, except zero dollars, which is no CON), there are more rural hospital consortia.
2. Participation in rural hospital consortia increases in states that have rescinded their CON policy (zero-dollar threshold), as hospitals

join forces to build and upgrade services in order to compete with urban hospitals.

The dependent variable is the "rural hospital consortia participation rate per state." It is measured by the percentage of rural hospital beds in consortia arrangements, compared with the total number of rural hospital beds in the state.

## Methodology

An exploratory research design, using both qualitative and cross-sectional quantitative data, was employed. The data were analyzed using descriptive and multiple regression techniques. All variables were entered in the regression equation in the order shown in the model. Significant variables were extrapolated; their results will be discussed in the results section. The study consists of 127 consortia, comprising 1,372 hospitals in 43 states (52 percent of all U.S. rural hospitals are in consortia).

Both quantitative and qualitative data were collected. The quantitative data were obtained mainly from state data files, the AHA, and the Health Care Financing Administration. Qualitative data from three sources were collected. First, interviews were conducted with 44 rural hospital administrators, state hospital association members, and state policy makers. Second, open-ended questionnaires were distributed to consortium directors. Third, state legislative bulletins were reviewed.

Data on the dependent variable, the rural-hospital consortia participation rate per state, were obtained mainly from the University of Minnesota School of Public Health, which acts as the evaluator of the Robert Wood Johnson Hospital Based Rural Health Care Program and thus has an extensive consortia database. The data were collected via telephone surveys to directors regarding the characteristics and activities of their consortia. There was a 99 percent response rate to the telephone surveys (Moscovice et al. 1989). In conjunction with this process, data on the number of rural hospitals and beds in each state were obtained from the AHA.

### *Data Analysis of Consortia Characteristics*

*Consortia Location.* Using the U.S. Census Bureau's division of the country into nine geographic locations, analysts found that consortia

were most important in the Pacific and Mountain regions (the West), and in the East and West North Central regions (the Great Lakes division). Colorado has the most consortia with ten, followed by California with seven. The lowest concentration of consortia is in the East South Central and the New England regions. Only 10.2 percent of the consortia were located in these regions. In addition, seven states have no consortia, including four from these two regions. Western rural hospitals may form more consortia because they are further away, and receive less support, from urban hospitals compared with those on the East Coast, leading them to depend more on each other. Comparing the percentage of hospitals with the percentage of beds in consortia, the West appears to have more small hospitals in consortia. This appears to be the trend among the regions, as the larger rural hospitals may be more viable on their own. On the other hand, for example, the New England region has a low percentage of consortia, but the ones they have are larger and comprise more hospitals and rural beds.

*Consortium Size.* The number of rural hospitals per consortium ranged from two to 76, with a mean of 10.07 and a standard deviation of 11.22. Eighty-five percent of consortia have 15 or fewer rural hospitals; 43 percent have five or fewer rural hospitals. The smaller size of consortia may be due to the expanse of rural areas; it is easier to manage proximate hospitals.

*Consortium Age.* Three-fourths (93 of 124; three did not list ages) are six years old or less, and 85 percent are ten years old or less. The average age is 5.84 years, with a standard deviation of 7.3 years. Many consortia formed after the introduction of the Prospective Payment System with the Medicare urban/rural differential. The oldest, located in Arkansas, is 49 years old.

### *State Policy Results*

*Medicaid.* There were three Medicaid variables, and it was hypothesized that each would significantly affect participation in rural hospital consortia. Of the three, two were shown to be significant according to the quantitative data. The Medicaid poverty population was not significant. The qualitative data emphasized the need to increase Medicaid reimbursements even though they are a small percentage of rural hospital revenues.

The poverty population variable (*povpop*) had the highest *t* (3.21)

and was significant at the 1 percent level. The Medicaid per capita variable (*mpc*) was also significant at the 1 percent level. Both variables had the expected relationship with the dependent variable. Thus, a 1 percent increase in the state's poverty population is associated with a 1.6 percent increase in the rural hospital consortia participation rate. Also, a 100-dollar decrease in Medicaid per capita is associated with a 5.4 percent increase in the rural hospital consortia participation rate.

The interviewees recognized that Medicaid reimbursements, which amount to approximately 10 percent of rural hospital revenues, are not significant; nevertheless, they were concerned by the low rate of these reimbursements (Jeffrey Human, Director, DHHS Office of Rural Health Policy 1990: personal communication). The state legislative bulletins reiterated this point.

The data confirmed the first hypotheses that decreased Medicaid per capita rates result in increased rural hospital consortia participation. The data did not fully support the second hypothesis. Here, the poverty population was significant, but not the ratio of Medicaid to poverty population. These results indicate that Medicaid funds should be enhanced and that those in poverty, especially in rural areas, need to be introduced to the Medicaid system.

*Certificate of Need.* There was one variable for CON and it was hypothesized that it would have a significant effect on rural hospital consortia participation, but results from the CON data revealed that the threshold variable had little effect on rural hospital consortia participation rates. Seventeen states had repealed their CON laws and thus had a zero-dollar threshold. The hypothesis that states with a zero-dollar threshold would have higher consortia participation rates was found not to be true.

Fifty-four percent of the interviewees stated that restructuring was a concern for rural hospitals, with only 27 percent specifically mentioning CON. Because states are phasing out their CON programs, few referenced it in the questionnaires. Those who did emphasized its high cost, which tended to discriminate against small rural hospitals. The legislative bulletins also followed this "discriminatory" line of thinking as various states recommended adapting the CON filing process for rural hospitals.

*Physicians.* There were three physician variables, and each was hypothesized to have a significant effect on participation in rural hospital consortia. Because there are many reasons, in addition to licensure re-

quirements, why physicians choose not to settle in rural areas, licensure stringency (*nlic*) was insignificant.

Based on the statistical analysis, a 1 percent increase in rural physicians (*rurmd*) is associated with a 1.15 percent increase in the rate of rural hospital participation in consortia. Also, a 1 percent decrease in rural hospital admissions (*ruradm*) is associated with a 1.4 percent increase in rural hospital consortia participation.

The variable, *rurmd*, was shown to be statistically significant, but with the opposite expected relationship in the quantitative results. This relationship may reflect the realities that having too few physicians may lead hospitals to close before they have an opportunity to join a consortium, and that the consortium has more success than a solo rural hospital in recruiting physicians; thus, a reciprocal relationship exists.

The rural hospital admission percentage was shown to be significant and had the correct expected relationship to confirm the third hypothesis. In areas with low admission rates, rural hospitals should be motivated to join consortia to share services and decrease duplication and fixed costs.

The questionnaire and interview responses and the legislative bulletins emphasized recruitment and retention of physicians, training of medical students for rural practice, and quality of care in rural hospitals. Consortia project directors agreed that the number of physicians directly affects the number of services and referrals and the scope of hospital operations. Directors viewed the difficulty in recruiting and retaining physicians and the need to share services as major reasons to join consortia. Interview respondents viewed recruitment and retention of rural physicians as the most important issue facing rural hospitals. Eighty-nine percent stated that this problem was more significant than eight others. The state legislative bulletins also emphasized this issue. All of the states had proposed or passed legislation, or had instituted an educational program or a recruitment plan, to deal with this problem. These activities suggest that states are recognizing that physician (and general health care personnel) recruitment and retention have a domino effect on the rural hospital, the residents, and the community.

*State Health Dollars.* Of the ten states with high consortia participation rates, seven provide less than the national average ( $x = \$234$ ) of per capita state health dollars. In this study, a 100-dollar increase in the state health dollars per capita is associated with a 5 percent decrease in the rate of rural hospital participation in consortia. This negative correlation

needs to be assessed, for as states tighten their budgets, hospitals should be encouraged to join consortia.

## Discussion

These research results will assist rural hospital administrators to encourage state leaders to enact policies that favor consortia development. Despite the diversity of rural areas and the uncertainty about responsibility, there was general agreement between the qualitative and quantitative data on which state policies affect rural hospital participation in consortia.

### *Medicaid*

According to the data, rural hospital participation in consortia is more sensitive to the amount of Medicaid funds than to the number of recipients. Medicaid per capita was negatively correlated with rural hospital consortia participation, whereas the percentage of those in poverty covered by Medicaid was insignificant. Theoretically, states can have 100 percent enrollment while paying very little to each person.

Medicaid has not been as responsive in rural areas as it has in urban ones. That the percentage of those in poverty who are enrolled in Medicaid programs was insignificant may reflect the lower percentage of rural than urban residents enrolled in Medicaid programs. Rural areas may face enrollment barriers such as a lack of transportation, telephone service, awareness, and social aptitude. Only 25 percent of the rural poor receive Medicaid, compared with 43 percent of the urban poor (Ermann 1990). Rural hospitals must provide social services to assist with enrollment and continuity of their residents' Medicaid benefits, which could then reduce the rural hospital's bad debt.

Although rural hospitals do not depend heavily on Medicaid, what is reimbursed is done so at low percentages. Fickenscher found that small, rural hospitals (below 50 beds) subsidize Medicaid payments at three times the rate of the average hospital owing to underpayments (Fickenscher 1986). Given their financial position, rural hospitals must discover how to remain viable with these low Medicaid reimbursement rates. Also, a rural hospital's solo pleas to legislators may fall on deaf ears, but joining with a group to present its cause may result in the message being heard.

### *Certificate of Need*

The financial situation of rural hospitals leaves many of them struggling merely to survive; expansion or renovation is not a priority. Also, because they lack adequate access to capital, carrying out the CON is difficult. Urban hospitals file for a CON more often than rural hospitals (although the exact figure is not noted) because they have a higher volume of patients and more complementary services (Feldstein 1983). This agrees with the data that the CON does not have a major effect on rural hospital participation in consortia.

Consortia can assist capital financing by pressuring the state to enact loan legislation and providing lenders with a wider base to assume risk. A Wisconsin consortium, comprising 20 hospitals, recently received a \$500,000 loan, which will be invested and will then act as a debt-service reserve. With access to capital simplified, consortium members may find it easier to apply for and implement the CON.

### *Physicians*

"Physicians are the gatekeepers; they ensure dependency from both patients and hospitals and thus without physicians hospitals may cease to exist" (Starr 1982). For example, when a Texas hospital lost its only physician, the hospital closed. The next closest hospital was 48 miles away (Texas Hospital Association 1989). Also, rural hospitals struggling with closure cited an "inadequate" supply and mix of personnel as a major factor (Ermann 1990). The data showed that the number of rural hospital admissions and physicians affects consortia participation. Having a greater number of physicians can increase the chances that the hospital will remain open and join a consortium for continued viability. Here, with more physicians in various specialties, they can attract referrals of greater numbers and types of patients.

The variable *rumrd* was shown to affect rural hospital consortia participation significantly. A reciprocal relationship may exist here because consortia "clout" may exceed that of solo rural hospitals in recruiting physicians and, in turn, physicians stabilize the hospitals and help them to remain open. Consortia can be attractive to both physicians and patients because the hospital can offer more services and specialties with shared services, lobby as a group for rural health policy, and provide a closer-knit environment for physicians and patients. For example, a Ne-



vada consortium has started a teleradiology system whereby rural hospitals can transmit X rays over telephone lines to a central receiving station to be interpreted by a radiologist. The cost of this advanced technology is shared by the consortium members, each hospital receives 24-hour radiologist services, and the patients of rural physicians can remain in rural hospitals.

### *State Health Dollars*

States that allocate more funds for health care had lower consortia participation rates. Here, the rural hospitals can depend on the state for financial assistance; thus, they do not need to join a consortium for economic reasons. However, instead of trying to increase state health care appropriations (which may never occur as states tighten their budgets), states and rural hospitals should work together to form consortia. Poor, rural areas need to utilize the existing infrastructure in creative ways, and consortia development is one example.

### Recommendations and Future Research

Three recommendations for moving toward a viable rural health care delivery system are suggested. First, although many rural hospitals feel isolated, they are still accountable to and included in the state's agenda; thus, they must keep their legislators aware of what is occurring in their states—"the grass roots situation." Second, the rural health care delivery system must be restructured to enhance access and contain cost. Some rural hospitals may have to close, and others should be encouraged to join consortia. Finally, because rural areas are so diverse, and their hospitals differ from urban ones in so many ways, separate policies are recommended for rural urban hospitals.

Based on the results here, a technical assistance program can be developed. Its objective would be to encourage hospitals to form or join consortia in states with policies that support the need for consortia development, as evidenced by the state's high participation rate. Knowing that certain factors affect consortia, future policies can be developed that foster consortia participation. Results here can target current state policies to be amended and the direction in which to proceed.

New alternative models of rural hospitals must be appraised through

evaluation research. How, for example, will medical assistance facilities compare with solo rural hospitals and consortia hospitals in cost, quality, and access to care?

Longitudinal research using an interrupted time series model is needed to assess the long-term viability of consortia. Literature on multi-hospital economies of scale suggests that start-up costs drive expenses higher during the first two to five years before a savings is seen (Cochrane and Fourkas 1979; Fottler 1982). Research on this issue would clarify the many multihospital arrangements.

Finally, hospital administrators and rural lobbyists must approach their state policy makers with validated research results on rural hospital consortia, not merely hindsight. Rural hospital issues are emerging in Washington, D.C., and in state capitals as policy makers realize the rural hospital's importance to community health and welfare.

## References

- Alexander, J. A., and T. L. Amburgey. 1987. The Dynamics of Change in the American Hospital Industry: Transformation or Selection? *Medical Care Review* 44:279-321.
- Altman, D., and D. H. Morgan. 1983. The Role of State and Local Government in Health. *Health Affairs* 2(winter):7-31.
- American Hospital Association. 1987. *Environmental Assessment for Rural Hospitals—1988*. Chicago.
- . 1988. *Profile of Small or Rural Hospitals, 1980-86*. Chicago.
- Christianson, J., I. S. Moscovice, J. Johnson, J. Kralewski, and C. Grogan. 1990. Evaluating Rural Hospital Consortia. *Health Affairs* 9(spring):135-47.
- Cochrane, J., and T. Fourkas. 1979. *Hospital Consortia—Are They Just Another Layer of Bureaucracy or a Key to Survival?* Sacramento: California Hospital Association.
- Cordes, S. 1989. The Changing Rural Environment and the Relationship between Health Services and Rural Development. *Health Services Research* (February):757-84.
- D'Aunno, T., and H. S. Zuckerman. 1987. The Emergence of Hospital Federations: An Integration of Perspective from Organizational Theory. *Medical Care Review* 44(2).
- Ermann, D. A. 1990. Rural Health Care: The Future of the Hospital. *Medical Care Review* 47:33-73.
- Feldstein, P. J. 1983. *Health Care Economics*. New York: Wiley.

- Fickenscher, K.M. 1986. *Proposals to Enhance the Viability of Rural Hospitals*. Grand Forks: University of North Dakota.
- Fottler, M., J. Schmerhorn, J. Wong, and W. Money. 1982. Multi-Institutional Arrangements in Health Care: Review, Analysis and a Proposal for Future Research. *Academy of Management Review* 7:67-79.
- Hurley, R., and A.D. Kaluzny. 1987. Organizational Ecology and Health Services Research: New Answers for Old and New Questions. *Medical Care Review* 44.
- Jewell, M.E. 1982. The Neglected World of State Politics. *Journal of Politics* 44:638-57.
- Joskow, P. 1981. Controlling Hospital Costs—The Role of Government Regulation. Cambridge, Mass.: MIT Press.
- Kennedy, L., and B.M. Dumas. 1983. Hospital Closures and Survival: An Analysis of Operating Characteristics and Regulatory Mechanisms in Three States. *Health Services Research* 18:489-512.
- Kindig, D.A., and H. Movassaghi. 1989. The Adequacy of Physician Supply in Small Rural Counties. *Health Affairs* (summer):63-75.
- Kusserow, R. 1989. *Hospital Closures:1987—Inspector General Study*. Washington.
- Longest, B. 1980. A Conceptual Framework for Understanding the Multi-Hospital Arrangement Strategy. *Health Care Management Review* 6:17-24.
- Lutz, S. 1988. Regional Alliances, Systems Are Coming to the Aid of Endangered Rural Hospitals. *Modern Healthcare* (July 22):48-50.
- Moscovice, I., J. Christianson, J. Johnson, J. Kralewski, and C. Grogan. 1989. *National Evaluation of the Robert Wood Johnson Foundation Hospital Based Rural Health Care Program—Development of the Program*. Minneapolis: University of Minnesota.
- Mullner, R.M. 1990. Rural Hospital Survival: An Analysis of Facilities and Services Correlated with Risk of Closure. *Hospital and Health Services Administration* 35:121-36.
- Office of Technology Assessment. 1990. *Health Care in Rural America—Summary*. Washington.
- Perrow, C. 1986. *Complex Organization, A Critical Essay*. New York: Random House.
- Rosenblatt, R.A., and I.S. Moscovice. 1982. *Rural Health Care*. New York: Wiley.
- Starr, P. 1982. *The Social Transformation of American Medicine*. New York: Basic Books.
- Texas Hospital Association. 1989. *Closure Report*. Austin.
- Zuckerman, H.S., and T. D'Aunno. 1990. Hospital Alliances: Coopera-

tive Strategy in a Competitive Environment. *Health Care Management Review* 15.

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