Case Management Issues in Rural Long-Term Care Models

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This article reviews research on some of the more visible long-term care case-management systems. In particular, the two generations of the Social Health

Maintenance Organization (SHMO) and Program of All-Inclusive Care for the Elderly (PACE) models are described, and alternative state-level models are also examined. The potential applicability of these models to rural settings is explored. Some elements of the SHMO and PACE programs that rely heavily on a well-developed provider infrastructure may not be applicable to rural settings. However, the models share some components that are directly applicable to rural settings, including integration of social, community-based, and medical services. The article concludes with a case study from a rural case-management model in Illinois that has evolved over time and with various rural populations.

Health care in rural America has been particularly susceptible to the volatility of financing and delivery of services in the past two decades. Many aspects of rural areas contribute to the vulnerability of health care organizations. The purpose of this article is to describe the development and implementation of a rural care-management model. First, the article provides a brief overview of changes in rural health care delivery in the past twenty years, including hospitals, clinics, and managed care organizations. These changes have highlighted the continued need for development and implementation of rural case-management systems, particularly with regard to coordination with medical systems. Finally, the article will describe a study

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examining outcomes of the model in a Medicare risk setting using a treatment to comparison group design.

Background

Changes in Rural Health Care Structures

Reorganization of the health care infrastructure has affected both rural and urban settings. One of the most dramatic examples of restructuring has been in hospitals. Rural hospitals have undergone rapid and drastic revisions, in part due to their vulnerability to change relative to their urban counterparts. For example, rural hospitals are generally smaller in size, have a smaller patient base, serve a disproportionately large Medicare population, and have smaller operating budgets than urban hospitals (Hart, Amundson, & Rosenblatt, 1990; Moscovice & Rosenblatt, 1985). While the number of urban hospitals decreased by less than 2%, the number of rural hospitals decreased by 17.1% between 1983 and 1993. During that time, 522 community hospitals either closed or stopped providing inpatient services (American Hospital Association, 1994). Closings of rural hospitals highlighted issues of access and availability of health care for rural residents.

Another change in rural health care delivery structures revolves around the development of primary care sites. Several federal policies have been designed to sustain access to health care for rural Americans. One policy (P.L. 95-210) established the Rural Health Clinic (RHC) program. The intent of RHCs is to improve access to health care for residents living in designated shortage areas by providing availability of primary health care services by using cost-based reimbursement to encourage the use of nurse practitioners and physician assistants (Travers & Ellis, 1992). Certification of RHCs jointly by Medicare and Medicaid is subject to many organizational and location specifications. The RHC program grew very slowly until 1990. After that, growth increased at a rapid pace to make RHCs the largest outpatient primary care program for rural underserved communities (Thometz, 1994). Research into the adoption of provider-based RHCs by rural health hospitals suggests that rural hospitals may be motivated to adopt RHCs by pressure to imitate others because of uncertainty or a limited ability to fully evaluate strategic activities (Krein, 1999).

Hospitals and clinics represent only two types of structures that have changed dramatically in the past twenty years. The advent of managed care has also drastically changed the rural health care environment. Although it may be surprising that managed-care organizations would invest in rural

areas due to limited resources spread over sparsely populated, dispersed geographic areas, managed care in rural areas is growing (Cooper, 1995). For instance, the percentage of rural counties in which a Health Maintenance Organization (HMO) is available increased from 14% to 28% between 1988 and 1993, and rural counties with HMOs tend to have more physicians per capita, fewer hospital beds, and higher per capita income than other rural counties (Christianson, 1995, noted in Cooper, 1995).

Growth of managed care in rural areas has been influenced in several ways. For example, in some areas, rural communities have organized Managed-Care Organizations (MCOs) to preserve or increase availability of health care services. In other cases, urban MCOs have developed services in adjacent rural areas. Another strong force stimulating growth of rural MCO development has been the pressure on state governments to control Medicaid costs through enrolling more beneficiaries in MCOs (Cooper, 1995).

Questions arise regarding the rural applications of managed-care principles that have been used in urban settings. Can the efficiencies of MCOs derived in urban settings be transferred to rural areas with relatively low population density? Several projects have been funded by the Agency for Health Care Policy and Research (AHCPR) to investigate this issue. For instance, the Oklahoma Research Center has been established to analyze and evaluate effective characteristics of public/private partnerships that create and sustain rural health primary care networks. The Maine AHCPR Rural Center is a consortium of health sciences and state health policy organizations that are assisting two rural regions in Maine to develop response strategies of changing local conditions and state and federal health reform initiatives. The Managed Health Care Reform and Rural Areas study was designed to gain an in depth understanding of the complexities of rural HMOs and alternative delivery systems. These projects and others will help identify rural health care needs and strategies for implementing systems to meet those needs (AHCPR, 1997).

Bridging the gap between the acute and long-term care systems is extremely difficult, given the barriers for patients in rural settings. Social HMOs (SHMOs) have been implemented to investigate systems that "integrate acute and chronic care for a balanced population using existing funding streams" (Social HMO Consortium, 1993). SHMOs are funded by Medicare risk capitation and by enrollee cost-sharing in the form of monthly premiums and co-payments. Medicaid participates in payment for qualifying members, although Medicaid-eligible members represent a small portion of the enrollment at the four demonstration sites. SHMOs have focused on implementing systems across the continuum and have been described as a system-focused model (Macko, Dunn, Blech, Ashby, & Schwab, 1995; Kodner, 1994). Evaluation of the SHMOs is ongoing. General findings include that case mix

groups varied in expenditures. In some cases, SHMOs reported higher total expenditures than fee-for-service, indicating a need for refinement of case management relations to medical care and selection of high risk cases (Newcomer, Manton, Harrington, Yordi, & Vertrees, 1995). Lack of coordination of case management, long term care, and medical services continued to be problematic and contributed to issues regarding access, coordination, and satisfaction (Harrington, Lynch, & Newcomer, 1993).

Purpose

The many changes occurring in rural health care delivery structures have highlighted the need for integrated coordination of services across the care continuum. Care-management systems have evolved in response to the structural changes. For instance, hospital closings have changed discharge and referral patterns. Changes in primary care clinics have meant new avenues for coordination between hospital, home care, and ambulatory care systems. And, finally, managed care has brought delivery and financing together in ways that have impacted care-management systems. The following section describes the evolution of a care-management model that has developed from a model used in fee-for-service geriatric care to one used in a Medicare Risk program.

The changes in hospitals and rural health clinics and the dynamic nature of managed care have all contributed to a continuing need for rural case-management systems to coordinate care across the continuum. Lessons can be learned from the research in this area, particularly in terms of the gaps in coordination of case-management systems with the medical care system. The purpose of this article is to describe a rural care-management model that has evolved in response to evaluation of patient and provider outcomes.

The Rural Case-Management Model

Managing the medical care of rural patients, particularly the elderly, highlights the primary care physicians' need to collaborate: to partner with a team comprised of a nurse, the patient and her or his family, and others as appropriate to solve problems in a holistic manner (Mottur-Pilson, 1995; Donaldson, Yordy, Lohr, & Vanselow, 1996; Starfield, 1992). Although physicians are accustomed to functioning independently in the diagnosis and treatment of illness, the concepts of holistic care, sensitivity, specificity, and predictive value are becoming more necessary and visible in clinical decision-making. The geriatric health care team must become proficient in (Wagner, 1996):

- care management,
- collaborative practice,
- the implications of health care financing and reimbursement,
- evaluating the rationale and efficacy of diagnostic tests and procedures, and
- appropriate referral.

The application of the model in a rural setting necessitates adoption of flexibility in functions and roles. In the collaborative care model, the primary care physician must be skilled as a team leader, using a systems approach in coordinating care for elderly patients and encouraging the involvement of other providers. The team, which is composed of the primary care physician, nurse partner, and patient and her or his family (Shelton, Schraeder, Britt, & Kirby, 1994), needs to develop skills in planning, coordinating, and providing care of elderly patients in managed health care systems, clinical decision making, and cost-effective use of medical resources (Epstein, 1996; Hickey, 1995).

Skilled rural care must be provided and coordinated by the health care team to avoid the inefficiencies of a more fragmented medical system and to assure a proper balance of the rehabilitative, psychosocial, nutritional, and economic aspects of care (Quandt, Vitolins, DeWalt, & Roos, 1997). Along with traditional disease treatment, the team must have a better understanding and more effective strategies for preventing illness, restoring function, avoiding iatrogenic injury, and maintaining a community orientation. The complete geriatric collaborative model has been described elsewhere (Schraeder, Britt, Dworak, & Shelton, 1997).

Patient-Focused Care

A major theme guiding the collaborative team-care model is that the patient must be involved to the fullest possible extent in decision making for health care and services. Traditionally, clinicians provided care and patients received it, as if healthcare were a commodity. The process of providing and receiving care was never a normal market situation. However, because clinicians always had more information about the illness or condition than the patient did, the patient was placed in a passive role. The collaborative team-care model represents a departure from this traditional way of thinking in that it empowers the patient through information sharing and team building.

A primary challenge in rural team care is helping patients to make informed choices relativve to their care and ensuring that they understand the personal impact of these choices. The challenge is particularly compelling with rural residents, elderly individuals or those with multiple chronic

conditions, because information, delivery systems, and care strategies are more complex and harder to navigate when caring for a constellation of conditions and lifestyle patterns.

The collaborative-care model offers the patient more choices and provides participative guidance in navigating the choices. Patients often enter the health care arena at a decision point. The strategies they have been using to care for themselves are no longer adequate; thus, they are faced with not only illness, but also the choice of how to proceed. Coordinating care across geographic boundaries and with constrained resources is often difficult in the rural setting. Participating in the health care team allows clinicians to work with the patient in identifying and defining the issue(s), describing a realistic goal, and arriving at a plan to reach the goal. Clinicians in the team model must be simultaneously observers and participants, bringing clinical expertise to the encounter but not overshadowing the patient's views and experience. The belief undergirding the model is that individuals can participate in their own care.

Implementation of the model rested on the observation that physicians and nurses who were successful at team care paid close attention to patient preferences, lifestyle patterns, and unique individual characteristics. Patients are the only ones who can provide the health care team with a clear perspective stemming from their individual vantage points. Patients attribute unique meanings to their health, illnesses, and life patterns. Meanings may be influenced by the rural culture. These meanings shape the way care is delivered within the team framework.

The question of how best to provide care to the growing number of rural patients is superimposed on a changing health care system. The transition from fee-for-service to capitation requires an examination of the allocation of resources within systems and for each patient. The roles of health care professionals, patients, and families must be realigned to accommodate collaborative practice and the primary care physician in a more effective way to increase access, expand the population base of each physician, and improve the quality of the health care services provided.

Setting

The Geriatric Team Care model was developed at Carle Clinic, Urbana, Illinois, with support from various funding agencies. Carle Clinic Association is a medical group practice with 300 physicians and 13 branch clinics operating in central Illinois. Carle Foundation Hospital is a 290-bed facility with an associated skilled-nursing facility, a home health agency, and hospice

and ambulance service. The Carle organizations provided the infrastructure for development of the Rural Team Care Model.

Evolution of the Model

This section will describe preliminary studies leading to the development of a rural team-care approach that is currently being implemented in a Medicare risk program within a rural context. Evaluation of the model over time has provided information on elements that work well in geriatric population-based care and revealed elements that are less useful. The model was originally designed to work in a fee-for-service system, but it has been used to facilitate the transition from fee-for-service to managed care, particularly Medicare Risk.

The model was first used when the Kellogg Foundation funded Carle's Outreach Program for the Elderly in the early 1990's. The model then consisted of a health educator, nurse, or social worker that made home visits, completed assessments, and arranged community services. High-risk patients were referred to the program by their physicians. Care managers worked closely with physicians to coordinate care.

Next, the model was changed to provide care management for patients with Alzheimer's disease and their families under the auspices of the Medicare Alzheimer's Disease Demonstration, funded by the Health Care Financing Administration. In this program, nurses and case assistants worked in 19 predominantly rural Illinois counties to provide care coordination, service authorization, education, and support for patients and caregivers. The model became family-centered, and less emphasis was placed on communication with the physician (Schraeder, Shelton, Dworak, & Fraser, 1993). Although patient and family outcomes and satisfaction were good, the missing component of integration with medical providers was an important aspect that was built back into the model in its next version.

The Geriatric Collaborative Practice Initiative targeted at-risk, community-dwelling elders and was supported by the John A. Hartford Foundation and Carle Foundation. Critical elements of the model were patient-centered care, primary care physician/nurse care-manager teams, and a start at population-based care. Nurse care managers worked with physicians to manage their panel of high-risk elderly patients and to coordinate services across the care spectrum, including home, hospital, and clinic visits. The model outcomes were measured in terms of patient and provider satisfaction, health service utilization, and clinical parameters (Schraeder, et al., 1997; Schraeder & Britt, 1997; Schraeder, et al., 1997; Shelton, et al., 1994).

Simultaneous to the development of the Geriatric Collaborative Practice initiative, the Community Nursing Organization (CNO) was implemented at Carle as one of only four sites in the country funded by the Health Care Financing Administration. The Carle site represented the rural setting while other CNOs provided an evaluation of the program in urban settings. The goal is to evaluate nurse coordination of services with capitated payment for Medicare beneficiaries. In the CNO, the model is used to provide care for healthy, moderate, and high-risk elders by coordinating services to meet physical, psychosocial, and environmental challenges. The CNO has provided opportunities for evaluation of the model under a capitated financing system. The program is using a randomized treatment to comparison group design to evaluate the model, compared to usual care on the outcomes of service use, cost, satisfaction, and clinical parameters (Schraeder, Lamb, Shelton, & Britt, 1997). This project is ongoing.

Research Questions

Evolution of the model generated several research questions pertaining to use of the rural team-care approach in Medicare Risk. The current study is funded by the John A. Hartford Foundation. The research questions guiding the investigation include the following:

1. How does the rural team-care model impact service utilization and total cost of care when compared to traditional practice for an identified at-risk sample?
2. How does the rural team-care model impact mortality, preventive health practices, health status, and functional status when compared to traditional practice for an identified at-risk sample?
3. How does the rural team-care model impact patient and provider satisfaction when compared to traditional practice for an identified at-risk sample?

Design

The study uses a longitudinal panel treatment to comparison group design. The treatment group consists of Medicare Risk enrollees who live in Carle's catchment area and are designated as at-risk through an initial screening process. The at-risk individuals in the treatment group are assigned to a physician/nurse team. The teams receive information reporting and feedback as described below. The comparison group consists of those Medicare Risk enrollees who live in the Springfield and Peoria catchment areas and are designated as at-risk through an initial screening process. Individuals in the treatment and comparison groups will be followed for a 3-year period.

Intervention

The key processes at play in the model are team care, provider education, population risk assessment, and integrated reporting and feedback. These processes have emerged as critical elements necessary for success of prior versions of the model. Ongoing evaluation and redesign of the model have highlighted the importance of exploring the lessons learned from the past and incorporating this knowledge into reconfiguring the model.

Team care. Team care consists of patients, physicians, nurses, and mid-level providers working in tandem to prioritize patient needs, coordinate services, ensure access to the right level of care from the right provider, and evaluate care outcomes. The physician is team leader and attends to the medical needs of patients. The nurse works in all patient-care venues (home, hospital, clinic), utilizing a proactive, preventive approach. The patient is responsible for communicating health care needs and goals and alerting the team to health changes.

Provider education. Provider education is the second key process. Carle developed and implemented an educational service to physicians, nurses, and administrative staff addressing the issues of managed care. Modules include quality care, collaborative care, risk assessment and reporting, clinical resource management, and quality outcomes. Sessions are held in the practice site and facilitated by a physician team leader.

Population risk assessment. Population risk assessment involves administering a health questionnaire on patient enrollment and at subsequent intervals. The information gathered in the assessment is used to stratify the patient into risk categories (well, moderate, at-risk). The patient is then assigned to a care team that uses the information to start a care plan and service coordination.

Integrated reporting and feedback. Information is used to provide feedback to providers about the characteristics of patient panels and clinical outcomes. Many reports have been developed, including the Patient Characteristics Report (summary of findings from health questionnaire), the Patient Panel Report (listing of all patients in a provider's panel with specific health information), and the Active Caseload Report, Provider Branch/Location Report and Administrative Report. Each of these reports has the goal of streamlining information and optimizing clinical decision making.

Table 1. Patient Demographics: Treatment and Comparison

	Carle (n = 467)			*Joint Venture (n = 340)*		
At-Risk	*M*	*SD*	*%*	*M*	*SD*	*%*
Age	73	10		72	12	
Female			52			57
Health status (fair/poor)			46			50
Five or more medications			46			43

Table 2. Health Conditions: Treatment and Comparison (at-risk)

Condition	*Carle (n = 467) in percentages*	*Joint Venture (n = 340) in percentages*
Diabetes	28	32
Congestive heart failure	26	26
Myocardial infarction	23	20
Coronary artery disease	21	22

Table 3. Screened Status (90% Screened): Treatment and Comparison Groups

Risk Status (in percentages)	*Carle*	*Joint Venture*
Well	37	34
Moderate	40	41
At-risk	23	24

Preliminary Results

Preliminary analyses indicate that at baseline, the treatment (Carle) and comparison (Joint Venture: Springfield and Peoria) groups are not significantly different in terms of demographic variables (Table 1). Additionally, health conditions of the at-risk groups were similar between the groups at baseline (Table 2). The percentage of patients screened into each of the risk categories was similar across treatment and comparison groups at baseline (Table 3).

Other outcomes being measured in the rural care model include satisfaction, service use, health status, and other clinical measures. To date, it appears that the key processes of team care, provider education, population risk

assessment, and information monitoring and feedback are successful in impacting patient outcomes in a positive way. Further evaluation is an ongoing process and will provide more information on the critical elements of the model as it is used in the managed-care arena.

Conclusions

The rural health-care arena is changing at an unprecedented rate. Service delivery structures and processes have been reconfigured and continue to change. Research into alternative delivery systems and care management for rural patients is ongoing. Integration of medical, social, and community services continues to be a challenge, exacerbated by the changing services available, new financing and delivery structures, and persistent inequalities inherent in rural health care. This article describes a model of rural case-management that has endured the changes in rural health and has served several at-risk patient populations. Evaluation of the model has lead to modifications, particularly changes that make the model more successful in integrating the medical system into the care-management schema. The model is currently being tested in a Medicare managed-care environment. Preliminary findings and future measurement strategies have been described.

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