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The Interdisciplinary Team in Geriatric Care

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Clinical geriatrics and interdisciplinary team care approaches have coevolved during the past 30 years. It has become an article of faith in geriatrics that the goal of multidimensional health for frail elderly patients is most effectively pursued by the interdisciplinary health care team. Geriatrics team models have recently become increasingly differentiated, following secular changes in the health care system that promote community-based care and research findings supporting the efficacy of team-based geriatric services. This article describes a number of these diverse models and evidence of their efficacy and ventures some thoughts on the position of geriatric teams within the more general emergence of primary, managed care models of health services delivery.

A hallmark of geriatric medicine is its attention to the multidimensional aspects of health in treating chronically ill and frail elderly. A single health care practitioner usually does not have the resources and expertise needed to meet all the needs of a typical geriatric patient, such as a grieving widower diagnosed with diabetes and heart disease who has become socially isolated because of mobility impairments, lack of transportation, and depression. Therefore, in geriatrics, the interdisciplinary team is called on to coordinate elderly patients' multidimensional needs for both health and human services, particularly when their needs in these areas overlap or create other needs in financial, emotional, and social areas (Heinemann, 1991; Siegel, 1994). This article traces the history of the interdisciplinary team in geriatrics, its differentiation, and the relevance of the model for general primary care teams. Evaluation and efficacy of geriatrics team models are considered. The expansion of the geriatrics team model is discussed in the context of our changing health care system, which also reflects a more complex model of health.

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THE HEALTH CARE TEAM

The "interdisciplinary team" approach in health care was first established in specialty areas such as rehabilitation and psychiatry about mid-century and was developed for geriatric primary care in the United States by the mid-1970s (Campbell & Cole, 1987; Zeiss & Steffen, in press). Early on, the general clinical rationale for establishing interdisciplinary geriatrics health care teams became apparent. Long-term, difficult-to-manage health problems, such as cardiovascular complaints, arthritis, or pulmonary disease, are much more prevalent in older than younger individuals. Further, older people exhibit greater variability in functioning: Because of a general decline of reserve physiological capacity with advancing age, they become more vulnerable to functional setbacks. Whereas older patients present with fully resolvable acute problems, health care visits by elderly patients are likely to be triggered by exacerbation of chronic problems, leading to an extended period of clinical management and follow-up. Thus, in addition to being long term, care plans developed to match geriatric patients' health-related problems are layered and complex.

What is meant by the term *team* is not obvious: There are several organizational and functional forms. Minimally, a professional group is a team if it shares a common work setting and set of patients, but teams differ among themselves in their membership composition, commitment to common goals, degree of collaboration in accomplishing team-related tasks, handling of leadership, and the kind of attention paid to team process. Teams of all stripes usually require group maintenance functions that include regularly scheduled time and space, a shared language, and agreed-upon methods for resolving conflict, making decisions, and allocating responsibility (Kindig, 1975; Rubin & Beckhard, 1972; Siegel, 1994; Szasz, 1979).

Several types of teams provide health care. The two most commonly associated with the provision of health care over the past several decades bear further definition. The terms *multidisciplinary* and *interdisciplinary* require some clarification as they are often confounded. Campbell and Cole (1987) define a multidisciplinary team as a group of professionals working independently and interacting formally. Their assessments and consultations are done separately with little communication from one member to another. In an interdisciplinary team, which is the form of choice in geriatrics settings, the group of professionals work interdependently in the same setting, interacting both formally and informally. Separate assessments may still be conducted, but information is communicated and problems are solved in a systematic way with other team members, typically during team meetings (Satin, 1994).

As interdisciplinary teams develop in the changing health care environment, a new model has emerged, known as the *transdisciplinary* team. Transdisciplinary teams are interdisciplinary teams in which members have developed sufficient trust and mutual confidence to engage in teaching and learning across disciplinary boundaries. In addition to collaborating, team members entrust, prepare, and supervise the sharing of disciplinary functions while retaining

ultimate responsibility for services provided in their place by other team members (Takamura, Bermost, & Stringfellow, 1979). An example of a shared team function might be a situation where clinicians on a team each serve as case managers for their patient population, regardless of their particular disciplinary expertise.

Ideally, the inter- and transdisciplinary models allow for the independence and equality of the contributing professions while pressuring team members to achieve consensus about group goals and priorities. Each profession is expected to contribute its own knowledge and skills directly to the decision-making process. The information is assessed according to its applicability to patient needs rather than on the basis of a rigid professional hierarchy. Thus a team may include medical professionals, associated health professionals, and paraprofessionals, all of whom equally contribute knowledge of a patient's function to the team plan (Ducanis & Golin, 1978).

There is probably no single ideal mix of professionals to include on a geriatrics team. Kane (1982) reviewed more than 200 health care teams and found almost as many discipline compositions as there were teams. Trends in staffing tend to relate to health care economics. As cost-containment pressures have arisen, team developers have had to become aware of the possible cost-quality trade-offs in limiting team staffing. A smaller team suggests lower input costs, at least in the short run. However, with the addition of each new team member, there is potential for greater benefit to the patient by increasing the productive interactions between team members. One solution is "flexible staffing," which reflects the need for both cost containment and a comprehensive team approach. Flexible staffing is now usually practiced in the variety of geriatric settings and distinguishes "core" and "extended" team members. The core is responsible for seeing every patient selected, developing team procedures, and deciding how to include other disciplines in patient assessment and treatment. Extended team members (dieticians, psychologists, optometrists, audiologists, speech pathologists, pharmacists, dentists, and other specialists) tend to interact with personnel from many teams and come to each unit's team meeting prepared to speak on the specific patients with whom they are working. Whatever the ultimate professional mix, interdisciplinary geriatrics teams are an elaboration of the biomedical model, and physicians are thus almost invariably a part of the core, usually with gerontological nurses and social workers (Campbell & Cole, 1987).

DIFFERENTIATION OF GERIATRICS TEAM MODELS

The first interdisciplinary geriatrics teams in the United States appeared in acute hospital settings before Medicare prospective payment reforms. Between 1970 and 1985, hospital stays were long and the large number of debilitated elderly people awaiting nursing home placement resulted in so-called bed-blockage of hospitals' inpatient beds. Geriatric interdisciplinary teams re-

sponded to the need to facilitate discharge and planning aftercare arrangements—two types of teams developed with different goals. The "geriatric consultation team" often had the objective of shortening hospital stays for older patients, and much of the team's work focused on development of care plans and discharge planning, with heavy contributions from social work (e.g., Barker et al., 1985). In contrast, the "geriatric evaluation and management [GEM] team" worked on designated bed GEM units, which lengthened the total hospital stay while aiming at improving patient function at discharge to home rather than a nursing home. The large, rehabilitation-oriented team, which is generally associated with geriatrics, developed on the subacute geriatric assessment unit and typically was composed of core disciplines that included medicine, nursing, social work, and rehabilitative services (e.g., Rubenstein et al., 1984). Both geriatric consultation and GEM models often extended the teams' work into postdischarge geriatrics follow-up clinics. In the clinic setting, a physician assistant or geriatric nurse practitioner might take over the key roles of case management or delivery of primary care. These geriatrics clinics also served as a base for developing outpatient geriatric assessment team models in which at-risk ambulatory elderly patients were newly evaluated and managed or referred.

The early adopters of these hospital-based team models in the United States were major university teaching hospitals and medical centers in the Veterans Administration [VA] system, whose mandates included research and education in addition to clinical care (Epstein et al., 1987). From there, geriatrics teams found their way into various academic nursing home programs established in select long-term geriatric care institutions that also tended to be affiliated with health professionals schools and VA centers (Rubenstein, Wieland, Pearlman, Grover, & Mabry, 1990). On balance, studies of these various models suggested they improved outcomes of care (Rubenstein, Stuck, Siu, & Wieland, 1991; Wieland, Rubenstein, Ouslander, & Martin, 1986; see also below). However, several important organizational barriers exist or have arisen, and the programs have been slow to spread through the rest of the U.S. health care system. First, there is a shortage—in all relevant disciplines—of health professionals especially trained in care of elderly patients generally and geriatric teamwork particularly. Second, reimbursement for these services has been intermittent and largely undervalued. With respect to nursing homes, aside from a few relatively resource-rich academic and voluntary facilities, the reimbursement base is commonly so poor that they struggle to retain a largely untrained staff and to provide adequate medical coverage (Kane & Kane, 1987).

Finally, the spread of hospital-based geriatrics teams has been most strongly limited by the aforementioned Medicare prospective payment reform (i.e., patient-care payments based on diagnosis-related groups [DRGs]), which largely "solved" the erstwhile bed-blockage problems of hospitals, if not the functional health problems of frail elderly inpatients, by encouraging discharge once acute problems have been stabilized. Rehabilitative team care, and even some aspects of diagnostic assessment (core processes of these programs), can only begin for most patients after medically stable. A recent survey showed that GEM units have made very little expansion into U.S. hospitals since the Epstein

study was conducted (Lavizzo-Mourey, Hillman, Diserens, & Schwartz, 1993), largely because of lack of a reimbursement base under DRGs.

Outside the Medicare system, the VA remains a bastion for GEM units (Wieland, Hedrick, et al., 1994). This reflects an organizational commitment to maintaining the multidimensional health status of aging veterans, to maintaining the high quality of geriatric care that GEM units represent (Goodwin & Morley, 1994), and to offsetting future potential health expenditures, including long-term care (Rubenstein & Wieland, 1991).

Although Medicare DRGs may have inhibited the dissemination of the early geriatrics hospital program models, reform also provided a context for the further evolution and differentiation of interdisciplinary geriatrics teams. Acute hospitalization, independent of disease processes, was increasingly recognized as contributing to much of the morbidity and functional breakdown confronting hospital-based geriatrics teams. Acute Care for the Elderly [ACE] units were established as a response. ACEs focus not only on stabilizing acute conditions but also on delivering a spectrum of "prehabilitative" care on specially modified wards (Palmer, Landefeld, Kresevic, & Kowal, 1994). An alternative to separate ACE units is establishing geriatric primary-care teams for acute care of elderly inpatients in general medical services (Naughton, Moran, Feinglass, Falconer, & Williams, 1994). Similarly, there has been renewed interest in fortifying the inpatient geriatric consultation team model, by granting them greater treatment responsibilities and control of aspects of acute care; these have been dubbed Geriatric Assessment and Intervention Teams [GAITs] (Germain, Knoeffel, Wieland, & Rubenstein, 1995; Hedrick et al., 1995). Finally, increased emphasis on short hospital stays, continuing interdisciplinary evaluation, and coordination of posthospital services has become even more important, leading to the formation of posthospital geriatric assessment and support teams operating in outpatient clinics or patients' homes (Burns, Nichol, Graney, & Cloar, 1995; Donald, Baldwin, & Bannerjee, 1995; Nikolaus et al., 1995).

Each of these new program models—ACEs, geriatric primary acute care, GAITs, and posthospital assessment and support teams—may require some modification in the configuration and operation of the geriatrics interdisciplinary team. For example, the medical and nursing members of the geriatrics teams are particularly active in the acute-care models, whereas the postdischarge support services involve an extended array of personnel in implementing home-care plans. Still, the basic team structure and function remains. As with the earlier models, these innovative programs are mostly limited to academic or VA centers, where they are being actively evaluated. Although early evidence suggests these new approaches may be effective, it remains to be seen whether any of these team approaches will be more widely disseminated than the early forms.

THE EFFICACY OF THE TEAM APPROACH IN GERIATRICS

The interdisciplinary team has been hypothesized to improve the long-term cost-effectiveness of care for frail elderly patients through a combination of

better maintaining their health and avoiding unnecessary, inappropriate use of costly health-related services. Unfortunately, the impact of the geriatrics team per se is difficult to address through well-controlled research, because teams are inextricably linked to the overall programs in which they reside. Outcome evaluations have treated the interdisciplinary team structure and function as part of a "black box" in which a number of components interact in unknown ways. Most of the attention in the evaluation of this literature has been focused not so much on the team aspect but on its correlated, unifying approach to multidimensional diagnosis known as comprehensive geriatric assessment (CGA) (Rubenstein, Wieland, & Bernabei, 1995). This may be due in part to the fact that team organizational variables such as degree of implementation, member interactions, and decision-making patterns are extremely complex and difficult to observe, and few trials have attempted to measure, control for, or assess the independent effect of these factors (Schmitt, Farrell, & Heinemann, 1988).

Some indirect evidence of the importance of team structure and function for improving health outcomes is available in a recent study of geriatric assessment units in the VA system (Wieland, Rubenstein, Hedrick, Reuben, & Buchner, 1994). This comprised a survey of all inpatient geriatrics units in the VA system, in which certain aspects of unit structure and process of care were correlated with procedural endpoints of patient care, indicative of the performance of these units in improving patient outcomes (details are available in Wieland, Hedrich, et al., 1994; Wieland, Rubenstein, et al., 1994). In the VA system, 73 geriatric inpatient units had existed for at least 1 year when surveyed in 1991; of these, 75% were characterized by being staffed by an interdisciplinary geriatrics team—defined, at a minimum, as a core unit of physician, nurse, and social worker specifically assigned to the unit and meeting at least once weekly to discuss assessment results and plan care. Table 1 describes previously unreported associations between units having/lacking this team structure and two key measures of unit function, that is, mean patient length of stay and proportion of patients discharged to home and to nursing homes. After controlling for several other unit and patient-mix characteristics also impacting these dependent variables, the effect associated with team structure remains significant in each case. Although this might be interpreted as evidence for the independent contribution of the interdisciplinary team to treatment benefits, it must be noted that the "better performance" of team units most likely indicates an adherence to the explicit treatment objectives for GEM units and that "non-team" GEMs are GEM units in name only, serving other ends. Thus these findings may not constitute a fair test of the interdisciplinary team approach toward outcome improvement.

Beyond this, however, two recent systematic reviews raise the level of evidence supporting the idea of the particular effectiveness of the interdisciplinary health care team in managing complex elderly patients with chronic illnesses and functional problems. In the first, we reported the results of a systematic review of controlled trials of a spectrum of geriatric assessment programs (Stuck, Siu, Wieland, Adams, & Rubenstein, 1993; Wieland, Stuck, Siu, Adams, &

TABLE 1: The Relationship of the Interdisciplinary Team Approach to Outcomes in VA Inpatient Gem Units

Dependent Variable	*Independent Variable—Means ± SD*		*Percentage of Variance Explained by Team Structure from MR Analysis; p value for Team Variable (Total Model Adjusted r^2)*
	GEMs With Teams (n = 55)	*GEMs Lacking Team Structure (n = 18)*	
GEM length of stay (days)	27.5 ± 14.5 (median = 23 days)	115.6 ± 136.8 (median = 63 days)	7; .013 (.24)[a]
Patients discharged home (% of total)	58.8 ± 19.4	31.0 ± 21.4	20; .0004 (.36)
Discharged to nursing homes (%)	22.8 ± 13.9	50.0 ± 25.0	15; .001 (.22)

a. Log-transformed GEM length of stay was employed as the dependent variable in the regression model.

Rubenstein, 1995). One concern was to determine which aspects of these programs may be responsible—compared to standard health services—for improving a variety of outcomes, including survival, living in noninstitutional environments at follow-up, clinically important improvements in basic activities of daily living and cognitive status scales, and avoiding hospitalization. One of these aspects was the ability of the program to control or directly deliver the treatment recommended by the assessment—a hallmark of geriatrics team process—versus merely making treatment recommendations to other providers. This systematic review has recently been supplemented to include several hospital-based trials appearing since 1993, focusing on the effect of these programs on 1-year survival following randomization to geriatrics or standard care (Wieland & Rubenstein, in press). The subset of trials characterized by team control of treatments ($n = 14$) showed a pooled mortality reduction effect that was statistically and clinically significant (combined odds ratio = 0.81; 95% confidence interval: 0.67, 0.97)—much greater than the effect for programs without team control.

Another group independently undertook a systematic, meta-analytic review of trials comparing the clinical effectiveness of specialized, interdisciplinary stroke management teams versus standard medical approaches in treatment of (mostly older) patients experiencing new cerebrovascular accidents (Langhorne, Williams, Gilchrist, & Howie, 1993; Stroke Unit Trialists' Collaboration, 1995a). This entirely different set of trials, although focused on a specific medical condition and not excluding relatively younger patients, was similar to the studies of geriatric assessment programs in relying on interdisciplinary teams to integrate acute treatments with early mobilization, rehabilitation, and the active participation of patients and family members. Here, too, the authors found a significant 1-year mortality reduction of a size almost identical to the geriatric assessment trials (combined odds ratio = 0.79; $p < 0.05$; Langhorne et al., 1993). Their subsequent work has suggested that these trials' common element—the

interdisciplinary team approach—is largely responsible for this effect (Stroke Unit Trialists' Collaboration, 1995b).

CONCLUSION AND PROSPECT

We have provided a brief overview of the interdisciplinary team approach in geriatrics, its history, recent developments in programmatic settings, and summarized evidence supporting the particular efficacy of the team component of geriatric assessment and treatment programs. Despite this evidence, the research agenda on the cost effectiveness of geriatrics teams programs is still quite full (Deyo, Applegate, Kramer, & Meehan, 1991; Rubenstein et al., 1995), and program development and dissemination has a great way to go to begin to meet the needs of frail and at-risk elderly Americans. Ironically, while clinicians and health services researchers have grappled with these issues, the team approach has emerged in the form of patient-centered, generalist-oriented inter- and transdisciplinary health-care teams, which have become the cornerstones of managed, integrated hospital-ambulatory primary care programs (Smith, 1995; Shortell, Gillies, & Devers, 1995; Rubenstein et al., in press). Undoubtedly, the problems and potentials of the interdisciplinary team will become much more familiar as market forces and incipient Medicare reform drive health care toward reorganization.

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