

Key Challenges in Studying Organizational Issues in the Delivery of Healthcare to Older Americans

Mary L. Fennell and Ann B. Flood

Objective. Drawing from the articles presented in this special issue, to provide an overview of three key challenges facing researchers in the area of organizational issues in primary care delivery to older adults.

Conclusions. To improve the quality of research done in this area we would recommend that researchers attend to the complexity of (1) defining an appropriate unit of analysis; (2) reframing our traditional models of service delivery to reflect ongoing changes in healthcare system actors and boundaries; and (3) reconceptualizing the outcomes of care to reflect adequately the reality of care for the aging patient.

Key Words. Multilevel models, episode of care, continuity of care, outcomes of care

The articles presented in this special issue focus on an extensive range of concepts, theoretical models, and policy issues connected to delivering primary care services to an aging population. Sofaer sets our stage with a review of key trends shaping the healthcare environment and the implications of those trends for older Americans; Zinn and Mor review internal characteristics of healthcare organizations that deliver primary care to this population; Kaluzny and colleagues focus on typologies of relationships between organizations and the possible influences of those linkages on care delivery; Counte expands on changes in the delivery system that are likely to influence whether and how older adults engage in health maintenance behaviors; and Wholey et al. outline the influence of various managed care arrangements on the cost and quality of that care and on the fragmentation that might still exist in the delivery system. Similarly, the theoretical models reviewed vary from the Behavioral Model applied to service utilization, to Contingency Theory applied to organizational performance, to applied models describing HMO staffing levels.

Despite vast differences in conceptual focus and underlying models, at least three key conundrums are raised repeatedly within this group of diverse papers. These three problems represent the central challenges facing researchers, because improvement in the quality of our research and the accumulation of usable knowledge to inform policy decisions in the delivery of care to older adults depends on both understanding these problems and developing careful, informed solutions. The three challenges are:

1. to select an appropriate "level" or unit of analysis, given the complexity of relationships linking actors and organizations at multiple levels in the delivery of care to this population;
2. to reframe our model of a delivery system to reflect recent and unfolding changes that expose our familiar but inappropriately rigid distinctions among actors, organizations, and typologies of care delivery;
3. to reconceptualize outcomes of care to match more appropriately the needs of an aging population.

To make matters worse, these three problems are not independent, and their interconnections create higher-order complexities for creating new conceptual models, research designs, and measurement strategies.

CHALLENGE ONE, DEFINING THE UNIT/LEVEL OF ANALYSIS

Although there are obviously many possibilities for defining levels in systems of care, it is conventional to identify at least three: (1) the organization itself, such as a hospital or an HMO; (2) a larger, socially defined unit that contains the care organization, such as a community or health services region or system of care organizations; and (3) the subunits contained within the organization, such as individual departments or practitioners. Researchers examining organizational issues typically inspect only one facet of care delivery at a time, or one level of analysis. Nonetheless, an important insight gained from open systems theory (and discussed by both Zinn and Mor and Kaluzny

Mary L. Fennell, Ph.D. is Professor of Sociology and Community Health, Center for Gerontology and Health Care Research, Brown University. Ann B. Flood, Ph.D. is Professor of Community and Family Medicine, and Director, Center for the Evaluative Clinical Sciences, Dartmouth Medical School. This article, submitted to *Health Services Research* on May 7, 1997, was revised and accepted for publication on January 12, 1998.

et al.) is that all complex systems tend to be nested units, that is, systems within systems within systems. For example, clinicians are gathered into teams that are attached to departments that occur at branches of a clinic that is part of a consortium that provides care for a regional plan that is part of a national chain that vertically integrates across hospices, hospitals, clinics, mental health facilities, and extended care units. The boundaries that separate such levels are seldom clear and are often rather arbitrary. Further, many of the boundaries and units within a level are not organized in neat concentric circles, but frequently overlap and cross-cut one another. For example, a clinician can work three days with one group of physicians and nurses at the main clinic, can spend two days with specialty care colleagues at another branch, and can be involved in the intensive care unit team at the local hospital. Individuals in modern societies are not completely contained within any single organizational unit but instead are partially involved in several. Similarly, health professionals and union organizations cross organizational boundaries in complex and sometimes unexpected ways.

While most analyses of organizational performance attempt to bypass these issues by focusing on one or more of the standard three levels, they can instead fail to fully identify the processes and outcomes they intended to study. The critical point is not that all nested levels must always be studied. Instead it is that one should be as clear as possible about identifying the level of analysis selected and about ensuring that the choice of level is aligned with the substantive constraints presented by the types of care, subpopulation of patients, and/or the goals of the care system under examination.

As mentioned by Counte and Kaluzny and other researchers, there is yet another important unit of analysis to be considered if we are to assess care delivery performance in a variety of vertically integrated health systems. They and others argue that the basic unit of data collection should not be a service or a patient, but an episode of care that embraces services provided across multiple sites and involving numerous actors. This concept challenges traditional measures of performance, implying that they contain inappropriate assumptions for today's complex systems, such as the presumed association between utilization and revenue for a single organization and therefore the assumption that the system's effectiveness can be maximized by maximizing the effectiveness of each component organization.

We would argue that it is important to recognize that system performance at any given level may not be analyzable as a simple aggregation of system performance at lower levels. This is one of the principal features of any system: its performance is determined as much (if not more) by

the arrangement of its parts—as discussed by Zinn and Mor, the types of coordination and integration achieved across units—as by the performance of the individual components.

Building and testing models to examine healthcare delivery to older adults is a task that calls for the development of multilevel models, in which the relative influence of various factors on either patient- or provider-level behavior needs to be captured. Specification of such models, then, should attempt to estimate the effects of delivery system characteristics on (for example) older-patient outcomes such as morbidity, functioning, or cost of care.

Specifying the appropriate levels within the model, however, is not a simple matter, since multiple contexts can influence patient outcomes simultaneously and those effects may be difficult to distinguish due to “nesting” or overlapping. For example, a physician’s clinical practice behavior can be nested within the organizational setting, which itself may be nested within systems or geographic locations.

Perhaps the most direct solution to such nested models is to explicitly estimate the effects of each possible macro-level factor on the micro-unit behavior. The variation in clinical practice in breast cancer treatment for older women offers an example. We know that older women tend to follow their physician’s advice when faced with treatment options. But the physician’s preferences are in turn influenced by macro-level variables, such as practice setting, organizational linkages to cancer clinical trials, and community resources. In addition, to completely assess this model, we must recognize that each of these macro-level factors can vary over time.

Another multilevel modeling problem derives from “clustering” or the interdependence of sampled units. Clustering occurs when sampled units are not entirely independent, as when, for example, more than one service provider from the same delivery system is sampled from an alleged population of independent units, or when more than one elderly person from the same household or more than one patient from the same clinic or physician is sampled under the assumption of independence. Clustering also occurs in time-series designs when presumably freestanding or independent provider organizations are sampled at the outset of the research, and then the two merge to become one organizational unit later in the time series. Although estimates of model parameters may still be unbiased using data from such a sample, clustering will adversely affect the precision of the estimates. Several different strategies to avoid problems with unreliable standard error estimates due to clustering have been developed (such as the use of unobservable

variable models to capture system or practice effects) and could be employed to measure the extensiveness of system-clustering effects.

CHALLENGE TWO, CROSSING SECTORS, FADED BOUNDARIES: REFRAMING OUR CONCEPTUALIZATION OF THE DELIVERY SYSTEM

It used to be simpler to model the factors that influence care outcomes because defining where the care was given and by which actors was an unambiguous exercise. For example, complex surgical care was always provided in the hospital. Ambulatory care meant that care happened in clinics and doctors' offices. Long-term care always occurred in nursing homes. Hospice care at the end of life was most often provided in freestanding hospice centers or by a home care team working with the family.

Now, however, those clear boundaries of care location have faded out of focus, and the sectors of care meld into one another. What used to be considered inpatient care is now routinely done on an outpatient basis (many surgical procedures, for instance, and their adjuvant treatments), and significant rehabilitative care following an acute hospital episode is delegated to either the skilled nursing facility, the rehabilitation facility, or home with nursing visits. Further, since the passage of the Medicare Catastrophic Coverage Act in 1988, hospice services are increasingly provided by special units embedded within hospitals or nursing homes. Similarly, the definitions of acute, sub-acute or post-acute care can no longer be made on the basis of care setting. Hospitals are increasingly supplying more long-term care (LTC)-related services, and nursing homes have been providing care for more acute and sub-acute patients.

Within rural areas, the hospital-LTC link is particularly complex. In most rural areas hospital beds can be used as "swing beds"; that is, a bed can be used to provide either acute or long-term care. Since 1982, small (fewer than 50 beds) rural hospitals have been eligible to participate in the National Swing-Bed Program, in which Medicare reimburses the incremental cost of providing long-term care in an acute care bed instead of a nursing home. In 1987, eligibility for swing-bed participation was extended to rural hospitals with 50-99 beds, and current estimates for swing-bed participation is over 60 percent of rural hospitals.

An additional layer of “boundary blur” can be found in attempts to categorize the type of care provided in particular care settings on even the most basic of distinctions: medical care versus mental health care. The prevalence of depression, for example, among older patients, whether located in primary care settings, inpatient settings, or long-term care settings has come under close scrutiny recently, and those estimates range from about 20 percent of elderly general practice patients to 65 percent of the elderly in nursing homes.

Whether institutionalized elderly actually are appropriately diagnosed for mental health problems or receive appropriate mental health care is not at all certain. More importantly for our understanding, we cannot ignore the very real fact of physical and mental comorbidity among older Americans, nor can we afford to estimate models of service delivery process or outcome for either the hospitalized or institutionalized elderly without taking the probability of mental health diagnosis (or misdiagnosis) into account.

Both the normal processes of deciding on and delivering all types of healthcare for individuals with complex problems (including but not limited to mental health) and the potential outcomes of that care can be compromised by misdiagnosed mental illness. Similarly, the policy implications and clinical import of research is compromised by the researcher’s ignorance of underlying mental health diagnoses. For example, Counte’s review of the literature on the health maintenance behaviors of older adults reveals the widespread assumption that purposive, rational action by older adults in decisions concerning their healthcare is the norm, and that the solutions for ensuring appropriate services matched to consumer preferences require us just to figure out how to make information on providers and plans more user-friendly. Indeed, such solutions and their underlying assumptions need to take into account the potential implications of prevalent mental illness and its comorbidity among the elderly population. For example, such comorbidity has an additive effect on patient functioning and well-being, and depression can interfere with patient compliance with medical management, can lead to errors in self-medication, and can mask or interact with functional disabilities. Further, Sofaer’s suggestion that models of shared decision making will become more important is particularly relevant given an appreciation of mental illness and comorbidity among the elderly, and it requires us to seek a greater understanding of the impact of mental illness on such decisions and to delineate those circumstances under which a shared decision model can be well implemented.

These very real complications of underrecognized mental health problems and cross-institutional care for chronic illness demand a deliberate focus as we move toward models of care delivery in which the unit of analysis is defined as the episode of care with variable time boundaries, and toward multilevel models with both micro and macro levels of care delivery across multiple organizational settings.

CHALLENGE THREE, RECONCEPTUALIZING THE OUTCOMES OF CARE

Two criteria for evaluating the performance of healthcare organizations have dominated the literature: the quality of medical care received by patients (including their satisfaction with services) and the cost efficiency with which healthcare is delivered. As reviewed by Zinn and Mor, quality of care can be evaluated by examining actual care outcomes (changes in health or functioning) or by benchmarking, that is, comparing actual performance or structures to state-of-the-art standards. Evaluations of care focused on processes or structures assume, of course, that an excellent structure in place enhances the likelihood of high-quality processes being performed and, consequently, the likelihood of better outcomes occurring. These assumptions therefore rest on correctly identifying state-of-the-art standards or validating that their use does in fact lead to improved outcomes.

While concerns about whether we have correctly identified benchmark performance and structures can be generalized to virtually all of the healthcare delivery system, we argue that they need to be particularly taken into account in evaluating care for the aged. Here, as in most of the articles in this issue, we illustrate some of the particular complexities that care for the aged raises, focusing on the “easiest” standard to validate: outcomes, or what actually happens to the aged patient.

Fueled by physician profiles and public report cards, the past decade has brought about an increased sophistication in measuring outcomes. Most health services researchers likewise are careful to control for the myriad of patient-level differences that can affect appropriate accountability for care delivered within the organization, such as adjusting for patient health factors when assessing outcomes following surgical care—even sometimes including post-hospital outcomes to assess hospital care.

Yet these underlying models for assessing outcomes seldom have been designed to focus on health statuses more common among the aged, such as

having several concurrent, complex, interrelated chronic diseases with the potential for acute episodes; having interrelated mental and physical health conditions; facing end-of-life scenarios; or redefining the goals of care so that prevention means pain relief, not disease prevention; where therapeutic intervention means palliation, not “cure”; or where maintenance means preventing further serious deterioration, not maintaining or even improving “normal” health. For the aged, patterns of functioning may vary considerably over time independent of a specific health problem, may not always be in the direction of deterioration, and may be very responsive to nonmedical interventions such as social support and adequate diet.

A variety of methodological and design issues need to be addressed in order to model and evaluate care properly for the aged. Focusing on terminally ill patients as an illustration, what outcomes should be used if we are to evaluate hospices, which are designed to provide psychological, social, and spiritual care for dying persons and their families? Evaluations in the past have typically focused on the costs of care and the range of services provided. Quality of hospice care is usually defined in terms of its effect on the quality of life for the patient under hospice care and is often “customized” to reflect differences in each state’s goals for the hospice program. But what truly constitutes a “positive outcome” for dying patients? How should “quality of life” be modeled? Whose care needs to be assessed—should we add care of the dying patient’s family and assess “prevention” of problems in the family members during the dying process or bereavement period? What is the set of “costs” that needs to be included in evaluating the cost-effectiveness of hospices themselves or hospices compared to other sites where people die?

In addition to these issues regarding the proper “outcomes” to measure, aged (or dying) patients receive their care from a wide range of providers and in a variety of settings. Despite the typical complexity of care for a single patient, evaluations of the performance of healthcare almost always have focused on a particular portion of that care attributable to a single provider or organization. Common examples include the Resident Assessment Instrument (RAI) for nursing homes, accreditation standards for hospitals, and NCQA standards for managed care organizations. How well, in fact, have we identified the portion that can be attributed to a single provider, when the true process for healthcare involves multiple actors? That, indeed, is the problem. Few of our models or methods explicitly acknowledge this interdependence, choosing either to ignore it or to attribute it to “case mix” adjustments.

What is needed most is a reliable and valid measure of continuity of care, which should take into account the extent to which care is coordinated

across care providers, care settings, and transitions between providers and settings. Even measures of illness episodes do not necessarily capture care outside of a particular setting, such as when a hospitalization is the unit of analysis for an episode. Continuity of care, or clinical integration, has been recommended by Shortell and others as the model on which managed care should be based, so that providers are explicitly recognized as able to bridge care settings along with the patient, so that information is coordinated and shared explicitly across these transitions, and so that the care manager may change with these transitions, even if the same actors are involved. Wholey et al. assert that managed care at its best would embrace such a model and that through creating effective mechanisms such as case managers or designated primary care physicians, integration and coordination—and presumably better outcomes—would result. Similarly, the multi-institutional, multi-provider, diversified health system should, on the face of it, make the sharing of information a matter of routine, through uniform patient records and centralized record systems across care setting and providers, thus improving care continuity and a variety of care outcomes for older adults.

This is the basis of the “seamless delivery system.” But whether or not such changes in care structures actually result in net gains for care quality or continuity has itself yet to be demonstrated in any conclusive fashion. In fact, whether such diversified systems actually result in shared or compatible patient record systems, thus assuring coordination of information about the patient within the system, still needs to be examined. Much of our evidence on this “simple” system improvement still tends to be anecdotal and characterized by descriptions of best practices.

SUMMARY

The articles in this issue, by concentrating in depth on some organizational issues and problems associated with care for the elderly, help illustrate the complexity of the underlying issues and the diversity of ideas that can be brought to bear to help solve these important public policy and human problems. Their diversity of approaches, and the cited nescience constraining early attempts to solve the underlying conundrums, helps make clear the three basic challenges for researchers, practitioners, and policymakers alike:

- *Challenge 1.* To create an appropriate model—and measures that address the levels of analysis in the model—so that we explicitly recognize and factor into our evaluations the true complexity of the

organizational levels and interrelated processes involved in producing care and health for the aged.

- *Challenge 2.* To reframe our view of the healthcare delivery system so that we do not limit our evaluation of success to the narrow organization-specific piece of the process and do not design our policies to reflect narrow profit-and-loss/firm-based approaches.
- *Challenge 3.* Finally, to reconceptualize “outcomes” of care to take into account the reality of care for the significant portion of aged patients whose health problems do not fit the one-disease/acute episode/cure-is-success model of “quality.”