

10

QUALITY IN NURSING HOME CARE

No issue for nursing homes is as difficult and controversial as quality of care. Of the approximately 19,000 nursing homes in the U.S. (Hing, 1987), probably more offer substandard care than in any other segment of the health care industry. Estimates of the number of nursing homes that operate below minimum acceptable standards vary, but the U.S. Senate Committee on Aging (1986) argued that as many as one-third were substandard. The U.S. General Accounting Office (USGAO), (1987) conducted a national study that found 41 percent of skilled nursing and 34 percent of intermediate care facilities were out of compliance during three consecutive inspections with one or more "requirements considered by experts to be the most likely to affect patient health and safety" (p.2). Although many nursing homes offer high quality, the wide variation in quality among nursing homes indicates a need for concerted efforts of improvement. The Institute of Medicine (IOM) conducted a 2-year study on nursing home quality of care and regulation. Based on a series of public hearings across the country, a review of the literature, and detailed case studies of selected state regulatory programs, the IOM Committee (1986) urged immediate federal legislation to improve nursing home regulation and quality of care. Several reports have described the serious problems in some nursing homes that have led to deaths, permanent injury, disability, pain, and discomfort (U.S. Senate, 1986; Wood & Pepper, 1988; USGAO, 1987; Pope et al., 1986; Blum & Wadleigh, 1983). Since federal fire and life safety regulations have been strengthened, most problems with poor nursing home care are related directly to inadequacies in clinical care itself. These problems include malnutrition, dehydration, decubitus ulcers, incontinence, infection, overmedication, depression, among others. Quality of life and residents' rights also are critical components to be considered in nursing home care. Some frequently cited problems are lack of privacy, lack of consideration for personal tastes, lack of choice of food and schedules, and discourteous staff. These common problems have given nursing homes a generally bad reputation with the public, which tends to view them as places of last resort.

The quality of nursing home care has become a growing concern because residents are generally showing increasing levels of disability and require increasingly more complex treatments. This change in acuity and dependence has been documented in several studies (Hing, 1987; USGAO, 1983; Shaughnessy, Kramer & Schlenker, 1987; Shaughnessy & Kramer, 1990). A number of public policies have influenced the increasing acuity. The introduction of prospective reimbursement for Medicare hospital patients has encouraged hospitals to reduce the length of stay and accelerate discharge (Estes & Wood, 1988; Neu, 1988). In addition, states are using Medicaid preadmission screening along with the home and community-based waiver programs that are designed to divert individuals away from nursing homes. Medicaid case mix reimbursement systems, which have been introduced in some states, have been designed to encourage nursing homes to accept residents with greater clinical care needs (Swan, Harrington & Grant, 1988). Under these systems, facilities receive higher reimbursement rates for resident mixes with greater

acuity levels (Fries & Cooney, 1985). Furthermore, the limited overall nursing home bed supply in some states tends to increase acuity levels (Swan & Harrington, 1986; Harrington, Swan & Grant, 1988). Bed supply is not expected to meet the growth in need for care brought about by the rapid increase in the age and disability of the population.

State of the Science

Structural Issues in Staffing and Labor

High quality of services are increasingly dependent on the personnel available. Medical technology formerly used only in hospitals now is being used in nursing home and home settings. The use of intravenous feedings and medication, ventilators, oxygen, special prosthetic equipment and devices, and other high technologies has made patient care management more complex and challenging (U.S. Senate, 1986). The increase in the acuity level of patients receiving long-term care services demands more highly skilled, formal long-term care. More vulnerable and dependent aged and disabled need not only complex services but also improved systems for ensuring quality of care (Gelder & Bernstein, 1986). To a certain extent increasing demands on the formal long-term care system are beyond the capacity of the current financing and delivery systems (Estes & Wood, 1988). Appropriate use of technology, training and skill levels needed by agency personnel, emergency back-up procedures, and training and supervision of formal and informal caregivers all become problems for quality assurance.

Providing consistently high-quality care in nursing homes to a varied group of frail, very old residents, many of whom have mental impairments as well as physical disabilities, requires that the functional, medical, nursing, social, and psychological needs of residents be determined individually and met by careful assessment and care planning--steps that require professional skill and judgement. To control costs, most direct care is provided by nursing aides who, in many nursing homes, are paid very little, receive relatively little training, are inadequately supervised, and are required to care for more residents than they can serve properly (IOM, 1986). Facilities that staff above the average number of professional nurses may be criticized by funding agencies as being inefficient (using additional input without significant change in the output). Yet, little research has been conducted to determine appropriate inputs or outputs in the care of older persons in nursing homes.

Staffing in Nursing Homes. Approximately 8 percent of the 1.5 million registered nurses (RN's) in the U.S. were employed in nursing homes in 1984 (Jones, Bonito, Gower & Williams, 1987). There are only 5.1 full-time equivalent (FTE) RN's per 100 patients in nursing homes in contrast with 1 RN for every 4.5 patients in hospitals (Strahan, 1988). There are 7.4 licensed practical nurses (LPN's) (FTE) per 100 patients and 30.8 nursing attendants (FTE) per 100 patients in nursing homes (Strahan, 1988). RN's spend less time with residents in nursing homes than they do in hospitals. In hospitals, RN's spend an average of 45 minutes per patient per day compared with less than 12 minutes for RN's in nursing homes. Nearly 40 percent of the 19,070 nursing homes (including uncertified and residential facilities) reported six minutes or less of RN time per patient per day and 60 percent reported no RN hours during the past week (Jones et al., 1987). Although the new federal legislation for nursing homes, (the Omnibus Reconciliation Act of 1987) requires one RN on duty 24 hours a day 7 days a week in nursing homes, a provision that will cost the government an estimated \$75 million over current staffing levels, these staffing standards are considered far from adequate by the nursing profession (American Nurses Association (ANA), 1986; Harrington, 1987). Staff levels should reflect the complexity of care required, the size of the facility, and the type of services delivered. The effects of current staffing levels and configurations and of alternate staffing levels on the quality of nursing services and access of aged individuals to nursing services in nursing homes should be examined.

The primary difference between RN's in nursing homes and RN's in hospitals was in the salaries, where nursing homes salaries (\$10.56 per hour average wage) were considerably less than hospital salaries (Strahan, 1988). In another study, 55 percent of RN's employed full-time in nursing homes earned less than \$400 a week, as compared with only 25 percent of hospital-employed nurses receiving this level. At the higher end of the salary scale, nursing homes had less than half as many RN's earning \$500 per week or more as hospitals and other settings did (Jones et al., 1987). Others estimate that salary differentials for nursing personnel in long-term care settings are 20 to 40 percent below the levels for comparable positions in hospitals (Harrington, 1987). Clearly, salary differentials between nursing homes and hospitals should be examined for their effects on the nursing home labor force and the quality of care provided.

One-third of nursing home nurses reported their primary position was in administration and supervision; the remainder were in more direct patient care (Strahan, 1988). Their work activities were primarily in the assignment and supervision of nursing staff, observation and charting of patient conditions, and administering routine therapies. Nursing attendants, who make up 63 percent of all nursing home direct care personnel, provide the majority of direct care for patients (Strahan, 1988). Many of the nursing attendants have little or no training and are paid wages (near minimum wage) below those of comparable positions in hospitals (Wagnild, 1988). Staffing patterns vary by type of ownership. In the National Center for Health Statistics (NCHS) study, RN's were more intensively used in nursing homes that were governmentally owned (9.1 RN's per 100 beds) and nonprofit (8.6 RN's per 100 beds) as compared with privately-owned homes (5.3 RN's per 100 beds) (Hing, Sekscenski & Strahan, 1989). In another report, certified skilled nursing facilities (SNF's), offering 15 or more services, nonprofit nursing homes, and facilities in large chains all had higher RN-to-patient ratios than the average nursing home (Jones et al., 1987). Pecarchik and Nelson (1973) found more services were available in not-for-profit than proprietary institutions, and salaries and benefits were reportedly higher in the not-for-profit homes. When Medicare was the source of payment, patients tended to reside in nursing homes with a higher level of RN employment. The percent of patient days paid for by Medicaid had a strong downward effect on the number of FTE RN's employed by nursing homes. The number of admissions per bed increased the intensity of RN utilization (Jones et al., 1987).

The Relationship of Staffing Patterns to Quality of Care. Because outcomes are difficult to define, an input measure, such as the ratio of nursing staff to residents, is often used as a proxy for quality. All other indicators are then examined for their relationship to that input measure (Kane & Kane, 1988). A few studies have examined the effects of staffing arrangements on quality of care. Hay (1977) found that 100 nursing homes rated as superior had approximately the same ratios of nursing staff to patients as all U.S. nursing homes but had a different mix of staff. They had a higher percentage of RN's to total staff (16% vs. 12%). Nearly 88 percent of the superior homes had RN coverage for all three shifts as compared to 23 percent of all nursing homes in the U.S. Superior homes tended to offer in-service education to personnel, often were associated with nursing and medical schools, and used functional rehabilitation models (therapeutic) rather than custodial care models. Linn, Gurel, and Linn (1977) found that patient survival was related to the nursing home characteristics of more RN hours per patient and high meal ratings; improved Rapid Disability Rating Scale (RDRS) scores were related to RN hours, higher cost, better physical plant, higher meal ratings, and better appearance of patients in the homes. In contrast to patients still in the home or rehospitalized at six months, discharged patients were associated with facilities having better medical records, higher professional staff-patient ratios, and more RN hours per patient.

Spector and Takada (1989) studied 2,500 nursing home residents in 80 nursing homes in Rhode Island to examine aspects of care associated with resident outcomes after controlling for resident characteristics. They found that low levels of staffing in homes with very dependent residents were associated with reduced likelihood of improvement. High catheter use, low percentage of residents receiving skin care, and low participation rates in organized activities also were associated with

poorer outcomes, in terms of functional decline and death. Low RN turnover was associated with increased likelihood of functional improvement. More large-scale studies are needed to determine the relationship between quality-of-care outcomes and staffing patterns, controlling for case mix. Improved measures of clinical outcomes are needed to examine this relationship.

Turnover and Retention Problems and Quality of Care. The overall nursing personnel turnover rates in nursing homes are frequently as high as 100 percent per year (Harrington, 1987). Other studies have reported average annual turnover rates for nursing assistants ranging from 55 to 75 percent (Almquist & Bates, 1980; Schwartz, 1974; Stryker, 1981). The retention of RN's in nursing homes over a one-year period is similar to that in hospitals. Retention rates are: 72.7 percent for nursing homes, 81.5 percent for hospitals, and 73.0 percent for other settings. Forty-one percent of RN's have worked in the facility 5 or more years (Jones, et al., 1987). Stryker (1981) found higher nursing staff turnover rates associated with proprietary institutions. According to Jones et al. (1987), government-owned facilities had higher retention rates for RN's than proprietary facilities. Nurses employed in independent facilities had a significantly higher retention rate than did nurses in medium or large chains. The same study identified the following factors as important to RN retention in nursing homes: 1) provision of a comprehensive orientation program for newly hired RN's; 2) availability of in-service education; 3) RN's with geriatric training were more likely to have a longer tenure than those without geriatric training. Although high turnover rates are assumed to be undesirable, nursing homes, like other health facilities, have some economic incentives to encourage high turnover rates to keep wages low. Spector and Takada (1989) are among the few researchers who have studied this area. The effects of differential levels of employee turnover rates on the quality of nursing home care and outcomes for residents need to be examined in future research.

Effects of Education on Quality. RN's in nursing homes were found to be trained primarily in diploma schools of nursing (60%) (Strahan, 1988). Most professional nurses in nursing homes have little or no formal training in gerontology and long-term care (IOM, 1986). Many nursing home attendants or aides have no formal training. In 1986, only 17 states had mandated training requirements for nursing attendants, and there were no federal standards for training (IOM, 1986). The Nursing Home Reform Act of 1987 (P.L. 100-203) changed the training requirements for nursing aides. Beginning January 1, 1990, nursing aides must receive 75 hours of state-approved training and a competency evaluation. Facilities also must provide regular in-service education and performance reviews of all personnel. Minimum educational requirements for nursing aides have not been examined; also, studies have not been done on effective methods of educating individuals with minimum educational backgrounds and poor reading and writing skills. Few studies relate the educational preparation of staff to patient outcomes, and most have focused on specialized education for RN's. Modigh and Venegoni (1988) described a case study of a 250-bed proprietary intermediate care facility that was in serious trouble with licensing and certification deficiencies. The facility hired a director of nursing with master's degree preparation and extensive background in clinical geriatrics, and a geriatric nurse practitioner (GNP). According to the state survey team, the facility "turned around" within 90 days. The presence of two nurses with advanced educational preparation had a direct effect on physical function, the number of decubiti, and the number of falls incurred by patients. Gray reported (1982) that the presence of a gerontological nurse specialist in a nursing home resulted in enhanced quality of life of the residents as defined by increased activity, self-care, physical independence, and mental reorientation. More recently, several demonstration projects examined the effect of GNP's in nursing home settings (Kane, et al., 1988, 1989; Mezey, Lynaugh, & Cartier, 1989a).

The Process of Care

Changes in the processes of nursing home care are expected to be critical in improving the care outcomes for residents. Inadequate resident assessment, care planning, and service delivery have

been identified as common problems in the nation's nursing homes (IOM, 1986). Recognizing this need, Congress made resident assessments mandatory in the federal certification requirements of the Omnibus Reconciliation Act (OBRA) of 1987. Residents' social and medical needs must be assessed upon admission or after any significant change in the resident's physical or mental condition and at least annually. The assessment must ensure that a minimum data set is collected as specified by the federal government. The interdisciplinary assessment must be conducted or coordinated by an RN who signs and certifies the assessment. The goal of nursing home care mandated by OBRA 1987 is to help residents attain or maintain the highest practicable physical, mental, and psychosocial functioning, in accordance with a written plan of care. A report of the Research Triangle Institute (1988) argues that resident assessment can be very beneficial when used in nursing homes. First, it will help facilities approach assessment and care planning more systematically and improve the range and quality of care. Second, it will provide facilities with information to identify changes in resident status and to modify the care plan. Third, it can be used by facilities to monitor performance and enhance the internal quality assurance processes. Finally, the information generated by the resident assessment system allows the facility to estimate more accurately the need for various resources, such as staffing levels and services, and to improve planning and evaluation of resource allocation.

Specific care-planning protocols should be developed for nursing homes residents with specific problems. Nurses should assume primary responsibility for the assessment and planning processes to ensure adequate outcomes for residents. The Health Care Financing Administration (HCFA) is expected to develop minimum standards for care-planning protocols and to use these in its regulatory process. In addition, all facilities are required under OBRA 1987 to have a quality assurance program and committee. This committee must consist of the director of nursing, a physician, and three other staff members. This committee is to meet at least quarterly to identify issues and develop and implement plans of action to solve problems. The facility should examine problems that are unusual such as the number of resident falls. If falls are common, a plan of action for the entire facility is to be developed.

Outcomes of Care

The overall goal of nursing homes is to provide high quality of care to residents. In the past, quality of care has been poorly defined not only by regulations but also by nursing home managers. The emphasis of regulatory agencies has been on structural characteristics and process since the Medicare and Medicaid programs were enacted. The OBRA 1987 legislation mandates monitoring of resident outcome measures through federal and state regulatory processes. This new emphasis places great attention on resident assessment and care planning to achieve favorable outcomes for patients. These outcomes of care for nursing home residents are easier to specify when the resident needs rehabilitation and other services on a transitional basis before returning home rather than for a resident who has a chronic condition and is not expected to return to the community. When residents have deteriorating medical conditions and functional or mental status, different types of outcomes must be identified and evaluated. Although technologies are improving rapidly for those who are acutely ill, the ability to define and measure quality of care of nursing home residents with chronic debilitating problems has not been very successful. Negative outcomes of care are easier to specify than positive outcomes. Some of the key negative outcomes that should be avoided are: contractures, decubitus ulcers, dehydration, malnutrition, urinary tract infections, upper respiratory infections, bladder and bowel incontinence, drug interactions, chemical and physical restraints, accidents and falls, and pain and injury. Other negative outcomes such as readmission to the hospital, increasing disability, or death certainly should be examined and prevented where at all possible. Instruments can be used to measure the frequency and extent of these problems in nursing homes. In each instance where a negative outcome develops, the issue is whether such an outcome could have reasonably been prevented or ameliorated with appropriate care. Although individual judgements must be made regarding negative outcomes,

protocols can be established to determine whether appropriate care and services were provided and to establish whether medical or physical and mental conditions precluded the appropriate delivery of services to each resident. Positive outcomes of care can be identified by a review of nursing diagnoses and their treatment. For each negative outcome to be prevented, a positive outcome should be specified and evaluated.

Mechanisms for Quality Assurance

Current Status of Quality Assurance. Quality-of-care assessment in long-term care currently is not as developed or formalized as in acute-care hospitals. Furthermore, the lack of effectiveness of regulatory systems in leading to optimum improvement in quality has been noted (Kurowski & Shaughnessy, 1985; Office of Technology Assessment, 1987; Kane, 1988) and is considered to be due to numerous factors, including: 1) minimum standards becoming the status quo; 2) the emphasis on largely structural criteria, rather than care processes and outcomes; 3) a focus on bad care rather than on good care; 4) ambiguity in standards, leaving much up to the surveyor's judgement and interpretation; 5) emphasis on the "medical model" as opposed to the "home" part of the nursing home and quality of life; 6) a primary focus on written records that may not reflect actual care and conditions, but only measurement of "paper compliance"; 7) predictable timing of surveys; 8) inadequate staffing and training of survey units and lack of multidisciplinary input; 9) inadequate and inconsistent enforcement of standards, correction of deficiencies, and monitoring of compliance, and inconsistent penalties; and 10) an adversarial relationship between regulators and providers, rather than a cooperative, educational, and supportive one.

Role of the Nursing Profession. Long-term care of older persons, both in institutions and in the community, is provided almost entirely by or under the direction of nurses. This presents both an opportunity and a challenge for the nursing profession to take the lead in research on quality assurance and in the development of better methods for surveillance and improvement of long-term care. Leadership in quality assurance by the nursing profession has long been evident, beginning with the pioneering work of Florence Nightingale who investigated preventable mortality in military hospitals in the 1850's and proposed uniform classifications and forms for hospital statistics (Kopf, 1978). Another aspect of this challenge is that the nature of "quality" in the the long-term-care setting is very different from that in acute care. Although the goal in acute care is usually cure or at least significant amelioration of specific diseases and conditions, in long-term care the goals must be much broader. Even though acute episodes need to be addressed in the chronically-ill long-term-care patient, the overall focus must be on optimization of function and quality of life. The latter is especially important in the care of long-term nursing home patients for whom the facility will literally be "home" for the rest of their lives. Specification and measures of desirable outcomes and the demonstration of effective care processes to achieve them are especially difficult, under researched, and under developed in the multifaceted realm of "quality of life."

Structure, Process, and Outcome. A basic underlying issue, which should be the primary theme in developing a research agenda for quality assurance, is that unless we know what the effects of specific processes and modalities of care are upon patient outcomes, we can do very little to improve that care. Although we might be able to measure better outcomes in one setting than in another, unless we can demonstrate what specifically produced the better outcomes, not much can be done to improve the situation in the less successful setting. This concept was discussed, specifically in regard to nursing care, by Bloch (1975) a decade and a half ago. Thus, while there may be solid experimental evidence for the effectiveness of treatment of an infection with an appropriate antibiotic, there is far less evidence on what feasible and affordable methods of care lead to a happier, more functional, and less dependent nursing home resident. In spite of, or perhaps because of, this dilemma, there is some debate in the literature as to what constitutes the best measure of quality of care: structure, process, or outcome. All three were originally

formulated as relevant sectors for quality assessment by Donabedian (1966, 1968, 1978, 1979, 1980, 1981, 1988, 1989). There has clearly been an overriding emphasis on structural and, to a lesser extent, process measures in the regulatory arena. This seems to be swinging sharply over to an emphasis on outcome through the OBRA 1987 amendments. Although most authors agree that all three elements are important and interconnected, there are differences in perspective as to their relative importance and emphasis. The Kanes argue eloquently for the priority of outcome measures (Kane, 1988; Kane & Kane, 1988). Others point out the limitations of using outcomes alone for regulatory purposes because of the difficulty in defining appropriate outcomes, as well as the difficulty of relating them to structure and process; this results in a limited ability to enforce or suggest ways for improvement. In any case, the problem is well stated by Kurowski and Shaughnessy (1985): "Results of long-term care research generally support the conclusion that the relationship between structural measures of quality and the process of care, and between the process of care and its outcome, is not well established" (p.113).

Research on Quality Assurance. In 1975, and again in 1979, the American Nurses Association (ANA) sponsored conferences on quality assurance. Attendees of the 1979 conference identified the following areas as future priorities for evaluation and evaluation research (Lang & Werley, 1980): 1) establishment of nursing information systems that articulate with other information systems at the patient, unit, institutional, and national levels; 2) establishment of a classification nomenclature, including nursing diagnosis, for development of standardized data bases for nurses; 3) increased study of process-outcome relationships including development of valid and reliable tools; and 4) more study of the effects of structural variables on process and outcomes of nursing care. Lang and Clinton (1984) reviewed 164 studies published from 1974 to 1982 that assessed the quality of nursing care in general. Nursing investigators carried out 78 percent of the research. Only five studies in nursing home settings were reported (Greene & Monahan, 1981; Kane et al., 1981; Howe et al., 1980; Linn et al., 1977; Mech, 1980). Measurement of structure, process, and/or outcome elements were identified as well as factors that promote or impede the quality of nursing care. The authors did not note the need for more nursing home quality assurance studies in their recommendations for further research, but noted the need for continued testing of instruments as they are applied to different settings and populations.

Recently, projects and models of quality assurance have begun to take on more research-based approaches. One strategy for quality assessment is based on the tracer methodology devised for evaluation of ambulatory care by Kessner and Kalk (1973) and suggested later as applicable to long-term care (Zimmer, 1979). Tracers, whether related to diagnoses, functional status, or care modalities, and using both process and outcome measures, should be selected for the reasons enumerated by Kessner and Kalk, including: (1) the possibility of reflecting a positive effect of long-term-care interventions; (2) the feasibility of reasonably accurate measurement of the tracer and the variables connected with intervention; (3) the acceptable frequency of occurrence of the tracer; and (4) the reasonable unlikelihood of other concurrently changing variables affecting the tracer. The objective of presenting multiple indicators in the "tracer" format is to relate them to general care activity categories, such as physician, nursing, and other professional care, activity programs, and general administration. All tracers should reflect on the care in two or more of the care activity categories and provide evidence for overall adequacy of care in each of the categories. For example, a study of nursing care plans reflects on nursing and general administration; a study of bladder catheter care reflects on physician and nursing care. For a single facility, it would be possible to indicate whether findings are above or below the standard or norm if data are available from other facilities, thus providing a profile of the quality-of-care activities in the facility. This approach has recently been applied in several long-term care facilities in Israel (Fleishman Rosin, Tomer & Schwartz, 1986, 1987).

From the usual clinical and health services research perspective, the "gold standard" of methodologies is the randomized, controlled trial. This has finally been accomplished in quality

assurance (Mohide et al., 1988). A well-designed trial, randomizing 60 nursing homes to receive, or not, a quality assurance intervention (including predeveloped quality assurance packages and a consultant) targeted two prevalent principal indicators: hazardous mobility and constipation. Two hidden secondary indicators (potential skin breakdown and urinary incontinence) also were assessed to detect cointervention. Statistically significant improvement (though relatively small) in management of the principal indicators occurred in the experimental homes as compared with the controls; no changes were observed in the hidden indicators in either setting. This work establishes the fact that well-designed randomized, controlled trials in quality assurance are possible.

In New York State, the health department revised its nursing home quality assessment review system by instituting the "Sentinel Health Event" method which screens for outcomes that, if found in frequency above the statewide median in a facility, signal the need for a deeper probe into specific aspects of quality of care (Hannan, 1984; Hannan, O'Donnell, & Lefkwich, 1984). This was a seemingly rational approach, and although its efficacy and wider application still have to be fully established, it currently is being expanded into a broader quality assurance system for the state, which explicitly addresses quality-of-life issues (the New York State Quality Assurance System). Also in New York State, a series of region-wide quality-of-care assessments have been conducted in a group of approximately 45 upstate nursing homes that use a centralized review committee and staff. This approach makes it possible to compare both outcome and process measures of quality of care between individual facilities and the aggregate data from the whole group in the region and to use specific criteria sets when available (Zimmer & Williams, 1978; Sorensen, Sorensen, & Zimmer, 1979; Zimmer, 1979, 1982, 1983; Zimmer, Watson, & Treat, 1984; Zimmer et al., 1986; Zimmer, 1989). Other currently funded research is described in a recent overview by Peters (1989). It is clear that widening interest and support are beginning to accelerate research in quality assurance in long-term care.

Research Needs and Opportunities

Research is needed on virtually all aspects of quality of care in nursing homes. Although not necessarily in order of importance or priority for accomplishment, the following five categories, or stages, in a research agenda suggest a logical sequence in establishing a workable and effective system of quality assurance. In particular, without thorough attention to the first three, it is difficult to see how an effective system could be put into place.



Definition of Quality

Though clearly basic to the whole issue, consistent, precise, and measurable definitions of quality of care and quality of life are next to non-existent for many areas of long-term care. There would be almost universal agreement that certain negative outcomes, for example, high rates of decubitus ulcers or avoidable infections, undoubtedly constitute evidence for poor quality care. However, many other areas would be viewed differently from the perspectives of the resident, the family, the nursing staff, the administrator, and the third party payor. As a starting point, interview-based research could describe these differing viewpoints. Some of the most difficult definitions are in the area of outcomes and indicators of quality of life. Here, patient preferences and values are of maximum importance. A useful start in this area is the National Citizens' Coalition for Nursing Home Reform survey of over 400 nursing home residents

to identify markers of quality of care and quality of life (NCCNHR,1985). Examples of areas needing significant psycho-socially-oriented research include: how best to recognize and define differing life styles and expectations; identification of tradeoff decisions, for example, safety versus freedom; definition of attitudes toward control and making choices; and the ultimate right to decisions around dying. Desirable and realistic outcomes need definition by both provider and consumers (Roberts, Lesage, & Ellor, 1987; Kane & Kane, 1988). The definitions of quality of processes and structural attributes can be validated only by their causal linkage to outcomes and, to a large extent, are determined professionally. Although all areas of measurement of quality of care in nursing homes need attention, the priority should be on developing reliable and valid outcome measures.

Optimizing Structural Characteristics

Of particular concern to nursing research should be the relationship of quality to staffing patterns, nurse and nursing aide education and training, turnover and retention, job stress, and related issues. Matters relating to physical structure, plant operation, and other structural concerns are less likely to be subjects of nursing research. Important research questions include the following: 1) What is the effect of nursing aide training on competency levels? 2) What is the effect of different staffing mix (RN, LPN, nursing aide) on patient outcomes? 3) What is the effect of geriatric training for RN's and aides on patient outcomes? 4) What is the effect of supervisory training for RN's on aide turnover rates and/or patient outcomes? 5) Can professional nurses delegate their current activities to assess, plan, implement, supervise, and evaluate nursing services? 6) What types of personnel are needed in different institutional settings? 7) Should RN's who work with older persons in various health care settings have advanced graduate training in gerontology, community health, administration, and other specialty areas?

Efficacious Interventions in the Process of Care

Once the definitions of desirable, high-quality outcomes are better established, interventions that can achieve them need to be demonstrated. As reiterated in the preceding sections and in many publications, the causal relationships of attributes of structure and process to specific outcomes need a vast amount of research (Bloch, 1975; Lang & Clinton, 1984; Kurowski & Shaughnessy, 1985; Kane & Kane, 1988; Zimmer, 1989). This falls in the province of clinical research in general and requires well-controlled trials of available interventions in all aspects of chronic care. Roles of various health care disciplines, family members, and residents need to be identified clearly. The methodologies of clinical research need to be applied also to those interventions intended to improve quality of life. Once more is learned about causal relationships between care processes and the probabilities of desirable outcomes, some of the methods of clinical epidemiology, for example, using decision-tree models, can be studied and applied. Only when the relationships among structure, process, and outcomes are better understood can the next step, development of optimally effective quality assurance, be realized.

Quality Assurance Methodology

Much research will be needed on the development and testing of audit instruments for quality assessment, with detailed attention to specificity, sensitivity, reliability, validity, and overall relevance to significant issues (Kurowski & Shaughnessy, 1985; Chambers & Blum, 1988). Criteria, standards, and norms for decisions about quality, based on the audit data, need development and refinement. Audit tools must be sensitive to the varied needs of nursing home residents based on factors such as functional level, presence of mental illness, or known developmental disability. The equivalent of the severity indices developed for acute care would be useful in long-term care to provide criteria for resident case mixes; case mix measures could be linked to aggregate outcome expectations and standards for populations in facilities.

Methodologies for interpretation of data within a single facility or across settings also should consider structural variables related to characteristics of staff, the environment, organizational factors, and health care policy. The potential for greater efficiency through the use of tracers and indicator conditions needs thorough investigation. Finally, well-designed controlled trials to test the efficacy of quality assurance methods themselves must be conducted, focusing on those elements within the system that are most effective in achieving results in improving care policies, processes, and practices. At least one example has demonstrated that this is feasible (Mohide et al., 1988). Because of the widely varying nature of long-term care facilities and the many differing case mixes, these methods need testing in multiple locations, perhaps through large multicenter trials.

Data Bases

Although needed for other purposes in long-term care (e.g., regulation, reimbursement, management, planning, research), a patient-based data system would be invaluable in support of the quality assurance process (Kane & Kane, 1988). Modern computer technology makes this possible, and a standardized patient classification system would be an important component. However, the quality of any data system is entirely dependent on the quality of the data input. Long-term care recordkeeping is notoriously poor and this fact, combined with the deluge of forms and paperwork already required, cries out for development of a unified, consistent, and efficient recordkeeping system. This will require both good research and a very creative approach toward altering the outlook of the regulatory bureaucracies, already beginning through the Health Care Financing Administration's current efforts to develop a uniform minimum data set for use in nursing homes.

Recommendations

Based on the foregoing assessment of research needs and opportunities in "Quality in Nursing Home Care," the Panel has made the following recommendations for research.

- Examine the relationships among structural factors including staffing levels or ratios, education and training, salary and benefits, turnover and retention, and innovative models of long-term care delivery on the nursing care process and resident care outcomes.
- Develop valid and reliable resident assessment tools indicative of quality of care, particularly outcome measures, both for clients who require short-term rehabilitation and for clients who have deteriorating medical conditions and functional or mental status.
- Develop effective nursing interventions that improve quality of care in nursing homes and that emphasize causal relationships among structure, care processes, and the probability of desirable outcomes, with a view toward establishing criteria and standards for quality of care.
- Examine longitudinally the natural history of the long-term care experience of older persons with chronic illnesses including service utilization, consequences, and the meaning of the experience.
- Develop a patient-based computerized data system to facilitate the conduct of the quality assurance process with respect to regulation, reimbursement, management, planning, and research.

References

Almquist, E., & Bates, D. (1980). Training program for nursing assistants and LPNs in nursing homes. *Journal of Gerontological Nursing*, 6, 622-27.

- American Nurses' Association. (1986). Statement on minimal registered nurse staffing in the nursing homes and statement on mandatory training for nursing assistants in nursing homes. Council on Nursing Administration and Council on Gerontological. Kansas City, MO: Author.
- Bloch, D. (1975). Evaluation of nursing care in terms of process and outcome: Issues in research and quality assurance. *Nursing Research*, 24, 256-263.
- Blum, S.R., & Wadleigh, E. (1983). The bureaucracy of care: Continuing policy issues for nursing home service and regulation. Sacramento, CA: Commission on California State Government Organization and Economy.
- Chambers, L.W., & Blum, H.M. (1988). Measurement of actions of care-providers in long-term care. *Journal of Clinical Epidemiology*, 41, 793-802.
- Donabedian, A. (1966). Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly*, 44, 166-206.
- Donabedian, A. (1968). Promoting quality through evaluating the process of patient care. *Medical Care*, 6, 181-202.
- Donabedian, A. (1978). Needed research in the assessment and monitoring of the quality of medical care. DHEW Publication No. PHS 78-3219. Hyattsville, MD: National Center for Health Services Research.
- Donabedian, A. (1979). The quality of medical care: A concept in search of a definition. *Journal of Family Practice*, 9, 277-284.
- Donabedian, A. (1980). The definition of quality and approaches to its assessment. Ann Arbor, MI: Health Administration Press.
- Donabedian, A. (1981). Using decision analysis to formulate process criteria for quality assessment. *Inquiry*, 18, 102-119.
- Donabedian, A. (1988). The quality of care: How can it be assessed? *Journal of the American Medical Association*, 260, 1743-1748.
- Donabedian, A. (1989). Institutional and professional responsibilities in quality assurance. *Quality Assurance in Health Care*, 1, 3-11.
- Estes, C.L. & Wood, J.B. (1988). Organizational and community responses to medicare policy: Consequences for health and social services for older persons. Final Report. Institute for Health and Aging. San Francisco, CA: University of California
- Fleishman, R. & Tomer, A. (1986). Evaluation of quality of care in long-term care institutions in Israel: The tracer approach. Discussion Paper 125-86. Jerusalem: Brookdale Institute of Gerontology and Adult Human Development.
- Fleishman, R., Rosin, A., Tomer, A., & Schwartz, R. (1987). Cognitive impairment and the quality of care in long-term care institutions. *Comprehensive Gerontology(B)*, I, 57-70.
- Fries, B.E., & Cooney, Jr., L.M. (1985). Resource utilization groups: A patient classification system for long-term care. *Medical Care*, 23, 110-122.

- Gelder, S.V. & Bernstein, J. (1986). Home health in the era of hospital prospective payment: Some early evidence and thoughts about the future. *Pride Institute Journal*, 5, 3-26.
- Gray, P. (1982). Gerontological nurse specialist: Luxury or necessity? *American Journal of Nursing*, 82, 82-85.
- Green, V., & Monahan, D. (1981). Structural and operational factors affecting quality of patient care in nursing homes. *Public Policy*, 29, 399-415.
- Hannan, E.L. (1984). Setting program standards for New York State's periodic medical review. *Evaluation and the Health Professions*, 7, 141-156.
- Hannan, E.L., O'Donnell, J., & Lefkowich, W.K. (1984). The restructuring and evaluation of the patient medical review in New York State. *Journal Of Long-Term Administration*, 12, 10-18.
- Harrington, C. (1987). Nursing home reform: Addressing critical staffing issues. *Nursing Outlook*, 35, 208-209.
- Harrington, C., Swan, J.H., & Grant, L. (1988). Nursing home bed capacity in the states 1978-86. *Health Care Financing Review*, 9, 76-100.
- Hay, D. (1977). Health care services in 100 superior nursing homes. *Long-term Care and Health Services Administration Quarterly*, 1, 300-313.
- Hing, E. (1987). Use of nursing homes by older persons: Preliminary data from the 1985 national nursing home survey. *Advanced Data No. 135 Vital and Health Statistics. DHHS Pub. No. (PHS) 87-1250*. Hyattsville, Maryland: National Center for Health Statistics.
- Hing, E., Sekscenski, & Strahan, G. (1989). The National nursing home survey: 1985 summary for the United States. *Vital and Health Statistics. DHHS Pub. No. (PHS) 89-1758*. National Center for Health Statistics, Washington D.C.: U.S. Government Printing Office.
- Howe, M.J., Coulton, M.R., Alman, G.M., & Sandrick, K.M. (1980). Developing scaled outcome criteria for a target patient population. *Quality Review Bulletin*, 6, 17-22.
- Institute of Medicine. (1986). *Improving the quality of care in nursing homes*. Washington, D.C.: National Academy Press.
- Jones, D.D., Bonito, A.J., Gower, S.C., & Williams, R.L. (1987). Analysis of the environment for the recruitment and retention of registered nurses in nursing homes. *Health Resources and Services Administration, Division of Nursing, Washington, D.C: U.S. Department of Health and Human Services*.
- Kane, R.L., Rubenstein, L.Z., Brook, R.H., Van Ryzin, J., Masthay, P., Schoenrich, E., & Harrell, B. (1981). Utilization review in nursing homes: Making implicit level-of-care judgments explicit. *Medical Care*, 19, 3-13.
- Kane, R.A. (1988). Assessing quality in nursing homes. *Clinics in Geriatric Medicine*, 4, 655-666.
- Kane, R.A., & Kane, R.L. (1988). Long-term care: variations on a quality assurance theme. *Inquiry*, 25, 132-146.

- Kane, R.A., Kane, R.L., Arnold, S., Garrard, J. McDermott, S., & Kepferle, L. (1988). Geriatric nurse practitioners as nursing home employees: Implementing the role. *The Gerontologist*, 28, 469-477.
- Kane, R., Garrard, J., Skay, C., Radosevich, D., Buchanan, J., McDermott, S., Arnold, S., & Kepferle, L. (1989). Effects of a geriatric nurse practitioner on process and outcome of nursing home care. *American Journal of Public Health*, 79, 1271-1277.
- Kessner, D.M., & Kalk, C.E. (1973). A strategy for evaluating health services. Institute of Medicine, Washington, D.C.: National Academy Press.
- Kopf, E.W. (1978). Florence Nightingale as statistician. *Research in Nursing and Health*, 1, 93-102.
- Kurowski, B.D., & Shaughnessy, P.W. (1985). The measurement and assurance of quality. Vogel, R.J. and H.C. Palmer (Eds.) *Long-term care: Perspectives from research and demonstrations*, (pp. 103-132). Rockville, MD: Aspen Systems.
- Lang, N.M., & Clinton, J.F. (1984). Assessment of quality of nursing care. In H. Werley and J. J. Fitzpatrick (Eds.). *Annual Review of Nursing Research*, Vol.2, (pp. 135-163). New York, NY: Springer.
- Lang, N.M., & Werley, H.H. (1980). Editorial. Evaluation research: Assessment of nursing care. *Nursing Research*, 29, 68.
- Linn, M., Gurel, L., & Linn, B.A. (1977). Patient outcome as a measure of quality of nursing home care. *American Journal of Public Health*, 67, 337-344.
- Mech, A.B. (1980). Evaluating the process of nursing care in long-term care facilities. *Quality Review Bulletin*, 6, 24-30.
- Mezey, M., Lynaugh, J., & Cartier, M. (1989). Reordering values: The teaching nursing home program. In *nursing homes and nursing care: Lessons from the teaching nursing homes* (pp. 1-12). New York: Springer Pub. Co.
- Modigh, A., & Venegoni, S. (1988). Against all odds. *Geriatric Nursing*, 9, 289-291.
- Mohide, E.A., Tugwell, P.X., Caulfield, P.A., Chambers, L.W., Dunnett, C.W., Baptiste, S., Bayne, J.R., Patterson, C., Rudnich, V., & Pill, M. (1988). A randomized trial of quality assurance in nursing homes. *Medical Care*, 26, 554-565.
- National Citizen's Coalition for Nursing Home Reform (NCCNHR). (1985). Summary Report. A consumer perspective on quality care: The resident's point of view. Washington, DC: author.
- Neu, C.R. (1988). Posthospital care before and after the Medicare Prospective Payment System. Santa Monica, CA: Rand Corporation.
- Office of Technology Assessment. (1987). Quality assurance in long-term care: Special issues for patients with dementia. In *losing a million minds: Confronting the tragedy of Alzheimer's disease and other dementias*. Washington, D.C.: Congress of the United States.
- Omnibus Budget Reconciliation Act of 1987. Public Law 100-203. Subtitle C: Nursing home

reform. Washington, D.C.

Pecarchik, R., & Nelson, B. (1973). Employee turnover in nursing homes. *American Journal of Nursing*, 73, 289-290.

Pope, E., Smith, F., & Romano, B. (1986). California nursing homes: No place to die. *San Jose Mercury News (CA)*, November 9, 26A-28A.

Reeder, M.P. (1981). The benefits of area wide quality review. *Quality Review Bulletin*, 7, 2-3.

Research Triangle Institute (RTI). (1988). Development of resident assessment system and data base for nursing home residents. RTI Proposal No. 213-88-25. Research Triangle Park, North Carolina: Author.

Roberts, K.L., LeSage, J., & Ellor, J.R. (1987). Quality monitoring in nursing homes. *Journal of Gerontological Nursing*, 13, 34-40.

Schwartz, A. (1974). Staff development and morale building in nursing homes. *The Gerontologist*, 14, 50-53.

Shaughnessy, P.A., Kramer, A.M., & Schlenker, R. (1987). Preliminary findings from the national long-term care study. Denver, Colorado: University of Colorado Center for Health Services Research.

Shaughnessy, P.W., & Kramer, A.M. (1990). The increased needs of patients in nursing homes and patients receiving home health care. *New England Journal of Medicine*, 322, 21-27.

Sorensen, A.A., Sorensen, D.I., & Zimmer, J.G. (1979). The appropriateness of vitamin and mineral prescription orders in long-term care facilities. *Journal of the American Geriatrics Society*, 27, 425-430.

Spector, W.D., & Takada, H.A. (1989). Characteristics of nursing homes that affect resident outcomes. Paper presented at the Gerontological Society of America, Annual Meeting. Minneapolis, MN.

Strahan, G. (1988). Characteristics of registered nurses in nursing homes: Preliminary data from the 1985 national nursing home survey. *Advanced Data*. No. 152. *Vital and Health Statistics*. DHHS Pub. No. (PHS)88-1250. Hyattsville, MD: Public Health Service.

Stryker, R. (1981). *How to reduce employee turnover in nursing homes*. Springfield, IL: Charles C. Thomas.

Swan, J.H., Harrington, C., & Grant, L. (1988). State Medicaid reimbursement for nursing homes, 1978-86. *Health Care Financing Review*, 9, 33-50.

Swan, J.H., & Harrington, C. (1986). Estimating undersupply of nursing home beds in states. *Health Services Research*, 21, 57-83.

U.S. General Accounting Office. (1983). *Medicaid and nursing home care: Cost increases and the need for services are creating problems for the states and older persons*. Washington, D.C.: U.S. Government Printing Office.

U.S. General Accounting Office. (1987). Stronger enforcement of nursing home requirements are needed. Washington, D.C.: author.

U.S. Senate, Special Committee on Aging. (1986). Nursing home care: The unfinished agenda. 1 Special Hearing and Report, May 21, 1986. Washington, D.C.: U.S. Government Printing Office.

Wagnild, G. (1988). A descriptive study of nurses' aide turnover in long-term care facilities. *Journal of Long-Term Care Administration*, 16(1), 19-23.

Wood, T., & Pepper, M. (1988). How safe a haven? A series of articles appearing in the *Kansas City Star* (May 29-June 5).

Zimmer, J.G., & Williams, T.F. (1978). Spectrum of severity and control of diabetes mellitus in skilled nursing facilities. *Journal of the American Geriatrics Society*, 26, 443-452.

Zimmer, J.G. (1979). Medical care evaluation studies in long-term care facilities. *Journal of the American Geriatrics Society*, 27, 62-72.

Zimmer, J.G. (1982). Area wide quality assurance studies in long-term care facilities. *Quality Review Bulletin*, 8, 2-6.

Zimmer, J.G. (1983). Quality of care assessment in long-term care facilities. *Evaluation and the health professions*, 6, 339-344.

Zimmer, J.G., Watson, N., & Treat, A. (1984). Behavioral problems in skilled nursing facilities. *American Journal of Public Health*, 74, 1118-1121.

Zimmer, J.G., Bentley, D.W., Valenti, W.M., & Watson, N.M. (1986). Systemic antibiotic use in nursing homes: a quality assessment. *Journal of the American Geriatrics Society*, 34, 703-710.

Zimmer, J.G. (1989). Quality assurance. In P.R. Katz and E. Calkins (Eds). *Principles and practice of nursing home care*, (pp. 91-109). New York: Springer.

TABLE OF CONTENTS

CHAPTER 11