Care of the Aged: Old Problems in Need of New Solutions

This article reviews current dilemmas with long-term care and proposes new approaches to resolve them.

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Health practitioners are constantly admonished that they must minister to the whole person. Nowhere is this proviso more relevant than in the care of the elderly. Otherwise there is a danger that in trying to meet the very real health needs of the aged, we will exacerbate the social and psychological problems of a group already vulnerable because of the losses associated with the aging processes. The nursing home, as an all-purpose solution to the health problems of the elderly, has created a set of iatrogenic problems: increased dependency, depression, and social isolation among the aged (*1*). In the United States, although not in many European nations, institutional care of the elderly is conceived of and financed as a health service rather than a social service even though institutional placement provides a complete social context for an individual and obviously constitutes a rather dramatic social intervention.

In this article, we shall describe the nursing home in the context of other long-term care alternatives, describe the population found in nursing homes, discuss some of the issues (drawing on examples of long-term care abroad as well as in the United States), and then indicate ways that the financing of nursing home care creates disincentives to rehabilitation. We shall conclude by suggesting alternatives to nursing home care and, perhaps more realistically, a formula whereby the reimbursement of nursing homes might become more supportive of positive efforts to provide more effective care.

Summary. Long-term care for the aged in the United States is overly dependent upon the nursing home. This hospital-like model for long-term care is particularly inappropriate since it imposes a medical solution on a variety of social problems. An adequate long-term care program requires a range of resources in the community as well as in institutions; sheltered housing options seem a desirable alternative to the nursing home. To ensure the quality of nursing home care, the present focus on setting standards for care activities should be abandoned in favor of a focus on care outcomes (physical, mental, and social). In an effort to change our present perverse incentives in the nursing home industry, the proposal is made that nursing homes be reimbursed according to the degree to which patient outcomes meet predicted outcomes.

In the United States today, the nursing home has become the symbol of the inadequacy of the health system to meet the needs of the elderly. Although the public might prefer to ignore the nursing home out of shame, it is forced to confront it out of fiscal necessity. Health care costs for the elderly rose from $8.2 billion in 1966 to $34.9 billion (or 29 percent of the nation's total health care bill) in 1976, an increase of 190 percent in real dollars. In the decade since Medicare, however, the locus of care has also shifted. In 1966, 15 percent of health care expenditures for the elderly was attributable to nursing home costs, and by 1977 that proportion had risen to 23 percent. Although those over 65 use a disproportionate amount of almost every type of medical care available, the nursing home is perhaps the form of service most associated with the aged, and the most dreaded. At any time, only about 5 percent of the elderly population live in nursing homes, but it is estimated that in 1972 over 25 percent of the deaths of those over 65 occurred in nursing homes (or during brief hospital admissions from a nursing home facility) (*2*).

As the elderly population (and especially the population over age 75) increases, the costs of nursing home care are likely to continue to grow both absolutely and relatively. Periodic exposés aired both in Congress and in the popular press (*3*) force recognition that the infusion of money into nursing home care has not assured quality but has perpetuated a marginal system of care.

The Nursing Home Scene

Some terms need to be defined at the outset. "Nursing homes" in the United States imply some form of supervised care for medical and medically related problems; the term embraces those facilities that offer skilled nursing care, those that are personal care homes, and those with intermediate levels of care. For the most part, the level of care is defined by the level of nursing effort required. A large proportion of individuals found in nursing homes in the United States would in other countries be served in old-age homes under social service auspices; under those circumstances, the term "nursing home" connotes a more chronic hospital situation funded under health auspices.

The nursing home, in turn, is categorized as a "long-term care" facility. Technically, long-term care alludes to any care for a chronic problem on either an ambulatory or an institutional basis; in practice, the term refers to a prolonged service in a chronic care institution or its equivalents. A major point of contention currently is the definition of an "equivalent" to chronic institutional care. Suggestions include combinations of home health care, geriatric day-care centers, and day hospitals; much work is still necessary to determine whether such equivalents are truly substitutive for the nursing home or whether they are added requirements applicable to specific segments of a comprehensive health program for the elderly.

The nursing home differs substantially from the typical hospital (Table 1). In 1973, there were 21,834 nursing homes in the United States with over 1.25 million beds. [The maldistribution of this resource is shown by the fact that there were over four times as many beds per 1000 people over age 65 in 1973 in North Dakota (89.5) as compared to West Virginia (21.1).] Only about two-thirds of

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Table 1. Comparison of sample statistics for nursing homes and general medical and surgical hospitals in the United States in 1973 (*25*).

Facility	Number of facilities	Number of beds	Average beds per facility	Average personnel per 100 beds	Percentage proprietary
Nursing home	21,834	1,327,704	61	64	77
Hospital	6,458	1,030,432	160	243	13

the nursing homes in the country offered at least some nursing care. In 1973, nursing care facilities had 51 employees per 100 beds whereas personal care homes had 35.

Payment for nursing home care is a major governmental undertaking. In fiscal year 1977, $12.5 billion was spent for nursing home care of which $4.0 billion came from federal sources and $2.9 billion from state and local governments. These expenditures can be primarily traced to the Medicare and Medicaid programs. Medicare is far more restricted, covering only limited stays (up to 60 days) in skilled nursing care facilities. Medicaid is therefore the predominant payment source for nursing home care, drawing on a combination of both federal and state funds. Medicaid coverage extends to both skilled care and intermediate care nursing homes. Table 2 compares a sample of nursing homes participating in these programs.

The bulk of nursing homes are owned by private proprietors; in 1973, 74 percent of the homes and 68 percent of the beds were in proprietary hands, whereas 22 percent of the beds belonged to nonprofit organizations and 10 percent belonged to the government, primarily the federal government. The size of the nursing home varies according to its classification as a skilled care facility or a personal care home; only 16 percent of the skilled care facilities but 72 percent of the personal care homes contained 25 or fewer beds. In contrast, 60 percent of the skilled care nursing homes and 16 percent of the personal care homes contained 50 or more beds.

Although the nursing home industry is a large employer (of over 635,000 people), its personnel tend to be less well paid, poorer trained, and less satisfied in their work than those in other parts of the health care system. Professional nursing coverage is minimal, and other professional staff usually serve the nursing home on a part-time consultative basis. Physicians maintain even more independence of the institution where they attend when that institution is a nursing home than they do in the hospital. Social workers, occupational therapists, and other professionals appropriate to serve a setting where social needs are so admixed with health needs are in short supply and are often hired, like the physician, as consultants.

Nursing Home Residents

The nursing home has become a last resort for a variety of problems. Nursing homes are used by terminally ill individuals requiring intensive nursing care, recuperating patients needing briefer convalescence, and less ill but infirm aged who lack the social resources sufficient to manage in the community. Nursing home residents vary enormously along a continuum of physical impairment and mental disorientation. The wholesale removal in the 1960's of long-term elderly patients from state mental hospitals has produced a substantial number of nursing home residents with a primary psychiatric disorder other than senility (*4*). In this way the social reform of one decade has become part of the social problem of the next decade.

Although only 3 percent of the general population is over age 75, in 1974 almost 75 percent of the residents of nursing homes that provided at least some nursing care had attained that age. A disproportionate number of nursing home residents are female and are either widowed or have never married. Among those who are married, childless individuals predominate (*5*). As far as one can ascertain, it is a myth that adult children of this generation are devoid of family feeling and readily able to consign elderly parents to a nursing home. Despite all the pressures of a mobile society in which both men and women work outside the home, families do rally around to try to maintain elderly relatives in the community. A recent Boston study, for example, showed that 70 percent of intact families in the sample were willing to receive into their homes severely disabled family members who were returning from the hospital for the first time, this in spite of the fact that much personal care was needed and the vast amount of recommended service was provided physically and financially by families with no help from outside social or health agencies. After the second hospitalization, however, of these same disabled relatives, only 38 percent of the sample was willing to continue to provide care without social supports (*6*). In the absence of these social supports, families take reluctant recourse in the nursing home.

Nursing home residents tend to suffer from multiple chronic conditions. In 1973–1974, two-thirds of the residents had two or more conditions (*7*). A preponderance of mental disability was

Table 2. Selected characteristics of United States nursing homes by certification status; FTE, full-time equivalent (*26*).

Type of certification	Number of homes	Average number of beds	Average total FTE employees per 100 beds	Nursing FTE employees per 100 beds	Average occupancy rate (%)	Average length of stay (years)	Live discharges (%)	Percentage proprietary	Average monthly charge per resident ($)
Both Medicare and Medicaid*	4200	105	68.2	44.4	85.6	1.1	74.9	77.0	592
Medicaid only									
Skilled care nursing homes†	3500	92	76.3	42.8	89.2	1.7	66.3	72.0	484
Intermediate care facilities	4400	57	55.8	35.0	89.2	1.9	66.3	79.0	376
Not certified	3600	45	56.7	32.5	89.0	2.1	52.7	73.0	329

*Of these homes, 8 percent were certified for Medicare only. †Of these homes, 35 percent were certified as both skilled care nursing homes and intermediate care facilities.

present, including 58 percent with senility, 19 percent labeled mentally ill, and 17 percent labled as mentally retarded; the number of individuals in the last two categories has increased substantially because of the policy of removal from state mental hospitals (*8*). Despite mental health problems both as admitting diagnoses and attendant on admission to a nursing home, mental health services are scarce in these facilities. New technology such as reality orientation to reduce problems of senility is not common, nor is treatment for the reactive depression so frequent in the age group. Little social planning takes place to minimize the effects of mingling the mentally alert with the group euphemistically referred to in Britain as "mentally frail." Heavy doses of psychoactive medication are commonly used. Paradoxically, patients whose primary diagnosis is medical may receive more psychoactive drugs than those with primarily psychiatric problems (*9*).

Hospital or Old-Age Home?

If not the natural heir to the social responsibility for the elderly, the nursing home has become the de facto answer to fill a void formerly handled by family members in a less complex and mobile era and partially filled by government social services and personal health services in European countries. Like many products of mixed marriages, the nursing home faces a severe identity crisis. It is far from clear whether its dominant lineage is medical or social. Although most of the regulations for nursing homes seem to cast the facilities as miniature hospitals, most of the problems are more social than medical.

Judged as a hospital, the nursing home comes off poorly. It lacks the technical base of both machinery and manpower. The hospital's emphasis on professionalism and the concomitant assumption that the availability of resources is a close proxy for their appropriate use is not a protection which can be equally applied to the nursing home. The nursing home is not simply a scaled-down hospital; it differs in a number of important respects: problems are more chronic than acute, and treatment rather than diagnosis is the order of business. Patients are less transient boarders than lifetime residents. Although most hospitals are structured as nonprofit corporations, most nursing homes are run under proprietary auspices. In the hospital, there is often a lively power struggle between medical authority and administrative authority; in the nursing home, this balance is not maintained since the physician receives few intellectual rewards and little professional prestige from association with the nursing home. Physicians may react with disinterest and at times avoidance, with the blatant exception of those who exploit the market potential of the nursing home industry (*10*).

There has been steady pressure to upgrade the standards of nursing home care by stricter regulations and a simultaneous drive to limit expenditures. Reform proposals have concentrated on ways to reduce fraud and improve the quality of care provided. Unfortunately, the medical model response, which emphasizes staffing standards, care plans, and audit of results, cannot be transferred from hospital to nursing home without a commensurate commitment to increased costs. Moreover, such an investment would be made without any firm basis to anticipate that the course of nursing home patients can be ordered along the lines addressed by hospitals.

The modern hospital has already been indicted as a monument to technology, characterized by advanced equipment, division of labor, sterility, and inhumanity. It may be "a nice place to visit" for a short time with the expectation that sacrifices in dignity, comfort, and personal choice are made in the interests of receiving excellent diagnostic and curative services, but most former hospital patients would assert that they "wouldn't want to live there." Making more adequate hospitals out of our present nursing homes may in the long run be an inhumane solution to the social problem.

Long-Term Care in Other Countries

A valuable lesson about long-term care can be gleaned from the experience of several European countries. Observations both of differences in approach from those used in the United States and of some similarities in problems provide a perspective on the issues that face us in this country (*11*).

In European countries where long-term care is well developed, it is usually under government sponsorship; the most common pattern is that institutional care is under local government control with conformity to national guidelines. Even

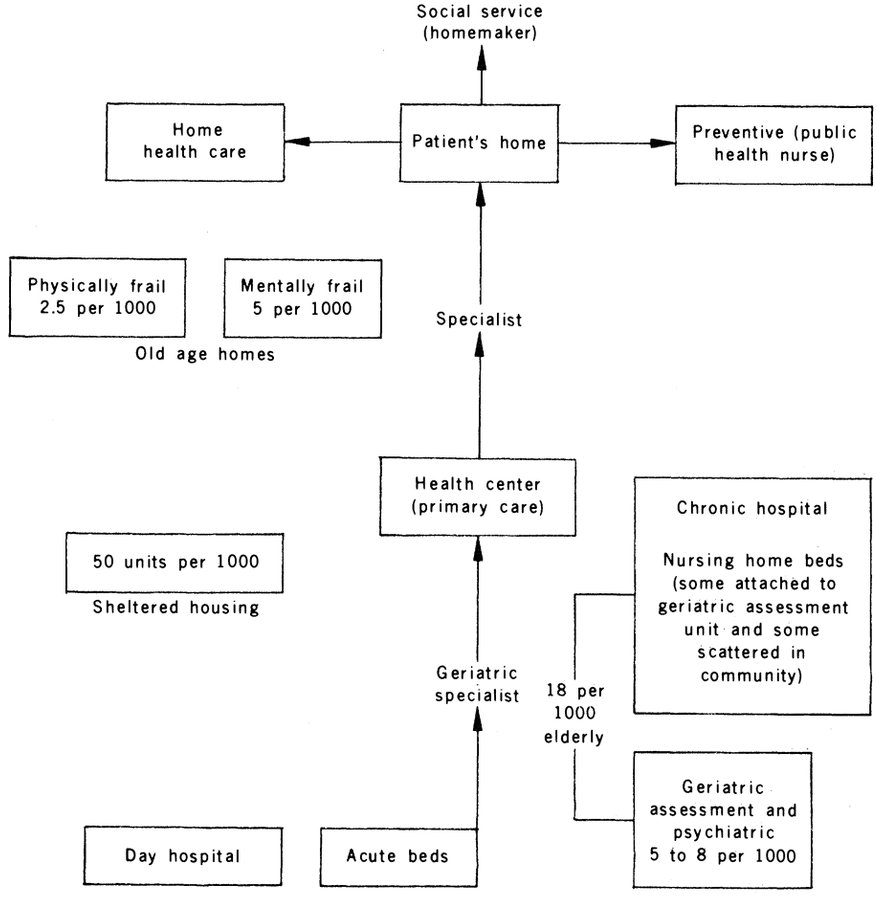

Fig. 1. Model of services to the elderly in Scotland, 1974. [Adapted from the writings of Dr. Ferguson Anderson with terminology changed to reflect American usage (*27*)]

in the Netherlands, where health care is still in private hands, nonprofit status is a prerequisite. Control by local government also permits more equity in salary benefits, eliminating differential rewards to hospitals in comparison to nursing homes and health departments.

Moreover, in countries where nursing homes are a well-established form of institutional care, they are more adequately funded than in the United States. The cost per day for a nursing home bed is on the order of 40 percent (Sweden) to 50 percent (Netherlands) of the cost of an acute care hospital bed compared with about 10 to 15 percent in the United States (*11*). However, the average length of hospital stay in these European countries is about twice that in the United States.

Comprehensive planning for long-term care abroad often is cast in terms of ideal models or goals, against which reality can be measured. Figure 1, an example of such an ideal plan in Scotland, illustrates differences in emphasis which place institutional care in a broader perspective among various alternative modes of service delivery. Although geriatrics is a well-developed and growing medical specialty in Great Britain, the first line of primary care for the elderly is envisaged as the responsibility of the primary care practitioner. An active home health program is also conceived as essential and is buttressed by a state-supported home help program administered and staffed by social services. Another important component of the model is the preventive work done by the health visitor, a public health nurse who identifies and visits high-risk individuals.

For those who cannot be maintained independently in the community, an alternative is sheltered housing, a protected form of community living which enables individuals to live in apartment complexes or detached cottages but receive supportive services; a typical sheltered housing scheme might provide a centrally prepared and served hot meal at noon, shopping services and distribution of provisions for individual apartments, an alarm system to notify a manager anytime a medical emergency might arise, and a variety of recreational options. The Scotland projections call for developing 50 such units for every 1000 persons over age 65; this is in contrast to the more modest estimation of requirements for old-age home and nursing home beds (a total of less than 20 per 1000).

The institutional care provisions in the model are divided between old-age homes administered by local social services with provision of medical care from primary health care sources and chronic hospitals under the health department which are served by geriatric medical specialists. In the Scottish plan, about eight beds per 1000 elderly are proposed for time-limited, inpatient geriatric assessment, ten beds for long-term hospitalization, and 7.5 for old-age homes. Clearly the home health and sheltered housing programs are meant to eliminate much of the need for institutional beds. However, in Scotland and elsewhere old-age homes administered under social services often house sicker patients and boast more nursing staff than skilled care nursing homes in the United States.

We have reviewed this example of one national plan at some length to illustrate how the parts of a system of long-term care are clearly interdependent. Partly because of this interdependency, problems inevitably arise in practice. Five problematic themes seem to recur, even in countries with well-developed, long-term care systems.

1) Accelerating costs within a finite set of national health and social service resources produce budgetary strain. With universal entitlements, the only means to control costs is to limit access or to recruit voluntary labor, or both. Bottlenecks tend to develop which impede an easy flow of patients between acute hospital, old-age home, chronic hospital, and sheltered housing.

2) With the recognition of long-term care as a social problem, social service departments are responsible for some institutional care, day-care centers, and the home help and personal social services underpinning home health. Communication and coordination between health and social service departments on a local level is often a problem.

3) The style of care varies greatly with the auspices of care. When care is viewed in the medical domain, emphasis is placed on more traditional diagnostic and treatment activities with relatively little attention paid to the problems of comfort and adaptation. On the other hand, the social service–operated institutions tend to pay far more attention to the comfort of patients but seem reconciled to more supportive and less rehabilitative goals for patients.

4) Although equalization of rewards has reduced some of the turnover of personnel characterizing American nursing homes, selection and training of staff is a continuous problem. In rural areas, with the prevailing wage rates, it is difficult to retain the staff necessary to mount adequate home health and day-care programs, nor do the less populous areas generate the revenue necessary to support the full range of desired service.

5) Only scant data are available to identify those programs that are effective in terms of reducing mortality and morbidity or improving the quality of patient life, or both. Without basic information about effectiveness, it is impossible to discuss the relative cost-effectiveness of various institutional programs or of community programs as compared to institutional programs. Long-term care programs need carefully designed studies of outcomes.

Implications in the United States

The United States has not yet resolved many of the basic conflicts that are associated with long-term care. The current status of the American program suggests a value system at variance with both the European stance and our own espoused goals. We have addressed our willingness to support elderly citizens more by incremental default than by positive programs designed to provide comfort and dignity. To some observers, it may appear that our efforts on behalf of those in the unproductive phases of their life cycle have been designed to protect the more productive elements of society from the burdens of providing direct care.

The moral discourse in this area is obscured by the relative invisibility of the American nursing home. There is evidence both in the United States and abroad that, when an institution for the elderly engages interdependently with the surrounding community, standards of care go up (*12*). If we look to market forces to improve the quality of nursing home life, we must provide consumers or their advocates with better means of making informed choices. This is an argument for encouragement of two-way volunteer activity between nursing home and community, integration of institutional and day-care facilities, or integration of programs for the elderly with programs for children. When the activities of nursing homes cease to be veiled, not only is the home accountable to the community but the public becomes accountable to the elderly for conditions about which it cannot plead ignorance.

Nor have we resolved the question of eminent domain. The issue of predominance between the medical and social models for long-term care is not merely a battle for bureaucratic supremacy between two factions of government; it is a fundamental clash of beliefs in the style of life to be pursued and the

appropriate manner of its pursuit. This conflict of credos involves questions of both ends and means—the goals and expectations generated by different perspectives and the paths deemed most appropriate to reach them (*13*).

Under the growing pressure of enforced fiscal austerity, a choice is increasingly necessary; nor could providers and consumers tolerate the ambiguity resulting from assigning equal weight to both approaches.

The social model is attractive because it emphasizes that health care, albeit crucial, is just one of many services needed to raise the quality of life for the aged. Especially with an elderly population, the often dwindling benefits of heroic medical measures must be balanced against the heavy social and psychological costs. Morbidity and disability are conditions of life for the majority of aged people. In a medical model, it would be possible for the conditions to define a range of life circumstances. The very permanence and intractability of these health problems argue for societal provisions to protect the elderly from a permanent patient role for decades before their death.

Therefore, we favor subsuming the provision of health care under a social plan over the reverse. However, we recognize that such a restructuring would be initially difficult in view of the prestige discrepancies between health care professionals and social service professionals in the United States.

Even in a socially oriented system some medical attention will be necessary. The current lack of interest among physicians in offering care to the elderly may be alleviated by one or the others of two routes. Most consistent with the medical model would be an effort to upgrade the status of physicians who care for the elderly by developing a specialty of geriatrics. This path has been successfully pursued elsewhere but tends to reinforce those values held by the technologically oriented physician-dominated system; it is not being pursued actively in this country at present (*14*).

Another option is to utilize other forms of primary health care providers. The geriatric nurse practitioner offers a potentially attractive alternative (*15*). The traditions of nursing lie closer to the nurturing requirements of long-term care, emphasizing health promotion and supportive activities over diagnostic emphasis. Early reports suggest that such practitioners may play a valuable role in providing primary care to both institutionalized and noninstitutionalized elderly. Experience from abroad argues strongly for the desirability of decentralization and local autonomy in administering long-term care. If relatively small and ethnically homogeneous nations have needed local autonomy, the demand seems much greater in the United States with its vast distances and cultural diversity (*16*). Local control facilitates simultaneous planning on all phases of care including primary care, acute care, home health, and institutional care.

Alternatives to institutional care are more likely to develop under such auspices (*17*). Experimentation with sheltered housing in this country has been very promising (*18*) and should be expanded. Since long-term care is to a large extent a social problem, provisions must be made for the personal services, including homemaking, meal preparation, shopping, night sitting, laundry, and so on; these provisions are not readily available at present. Here we face a problem which may be peculiar to North America where the performance of such personal services has not been valued. Either the general low regard for performing personal services must be somehow altered, or a uniquely American approach must evolve wherein these services will need to be professionalized, depersonalized, and mass-produced through technological and bureaucratic solutions.

A growing body of evidence suggests that, were adequate alternatives available, many people who are currently being institutionalized could be cared for without resort to nursing homes (*19*). We advocate greater investment in home care and especially in various forms of sheltered housing as a means of keeping people out of nursing homes. However, the current lack of information about the outcomes of different interventions sug-

An old man in Georgetown. [Jim Warren, National Kidney Foundation, New York]

gests that we exercise caution in urging simple solutions. One cannot safely promise, for example, that development of an effective home care system will drastically reduce the cost of institutional care—more money may be required by both home care and institutional programs in the future.

Although the profit motive has been largely removed from the long-term care scene in European countries with beneficial results, it appears infeasible, and not necessarily desirable, to suggest that proprietary motivations can be quickly removed from long-term care in the United States. We are, in fact, seeing an opposite trend with proprietary home health agencies and homemaking services springing up. A more pragmatic approach may be to seek ways of channeling the profit motive to provide proper incentives for a better standard of care.

Current and proposed methods of paying nursing homes offer all of the disadvantages of the general financing of health care with few of the safeguards usually assumed. All forms of fee-for-service or even cost reimbursement payment may be said to encourage perverse behavior. This potentially backward incentive stems from the fact that the sicker the patient (that is, the greater his needs for care), the more we pay for his care. Ordinarily we rely on the high professional standards of the hospital or the provider to prevent exploitation, but the results of such an approach to funding have been inflation and frustration (*20*).

The nursing home may be the ideal place to begin to reverse this approach. Several commentators have recognized the problem and suggested solutions (*21*), but none has gone right to the heart of the matter. We propose that nursing homes be paid on the basis of the actual outcomes of their patients. The precise method for accomplishing this goal requires that the status of each patient be assessed periodically (for example, every 6 months) by independent reviewers. (A system of utilization review is already in place to examine less pertinent data.) In view of the nature of the nursing home patient, the assessment must be a broad one with measures of not only physiologic parameters but also dimensions of overall functioning, social and psychological well-being, and satisfaction.

In brief, the data would be used to calculate an expected course (a prognosis) (*22*). The actual outcome assessed at the next point in time (perhaps 6 months later) would then be compared with the expected outcome. If the patient did as well as or better than expected, the home would be paid a sum greater than the estimated costs of care for that patient. If the patient did worse than expected, the home would receive less than cost. The cost calculation would be based on average care needs for a patient with the status identified at the initial time. A nursing home's income would then be the sum of the payment for each patient.

Because each patient is compared against his own prognosis, there is no incentive for skimming off patients with favorable prognoses. In fact, the system could be used in a prospective mode whereby the expected outcome was negotiated with the home in advance and contractual agreement reached for a predetermined payment for a given outcome.

Such an approach to payment has several prerequisites but also several notable advantages. In order to carry off the technique, we must have a reliable means of predicting the expected course of nursing home patients. This need confronts our current lack of adequate data on outcomes. Fortunately, we do have a number of tools with which to make many, if not all, of the necessary measures. The system also requires fair and honest data collection. Direct observation, rather than record review, by professionals not responsible for providing the care itself is essential. The preliminary work by several professional standards review organizations can serve as a model here. Finally, some mechanism for handling unpredictable events must be incorporated through some form of appeal procedure.

If the proposed system can be implemented, we will have an effective alternative to the current imposition of ineffective regulations (*23*). If we can monitor outcomes, we are free to allow the institution more liberty to experiment with alternative (and hopefully more creative) ways of achieving good ends. The market forces should drive the poorer nursing homes out of business (if they are able to operate for less than cost, they should be investigated) and encourage the better homes to expand.

Moreover, the suggested emphasis on outcomes would encourage an open examination of a series of social value questions. In the arena of long-term care, we must find ways to choose between different dimensions of benefit (for example, physiologic versus social). Gains in one are likely to be achieved at the cost of losses in others. Techniques are available to permit us to begin to examine in an organized way our value system in this sphere (*24*).

Conclusions

The ever-present needs of the elderly have been exacerbated by the stresses on the modern American family. The need for conceptual work to forge out a humanitarian and effective system of care is even more crucial. We are not as advanced in this task as some European countries, which benefit from smaller geographic areas, more homogeneous populations, and rationalized systems of health care. As we have pointed out, most forms of care for the elderly—including primary care, home health care, mental health services, sheltered housing, and day care—are woefully underdeveloped in the United States, while institutional nursing home care has become the catchall service.

The enormous task ahead requires simultaneous planning on a number of fronts. Ultimately, we would hope the provision of institutional long-term care might be organized as a social service with an important health delivery component rather than the reverse as is now the case. In the meantime, we have made some suggestions about ways to change the reverse incentives which now reward nursing homes according to the extent of the patient's disability. In the American context, it also appears that nonphysician practitioners are able to raise to a new level an arena of care that has largely been abandoned by the physician.

Experience abroad suggests that long-term care programs are not really interchangeable; a well-developed home health program, for example, does not obviate the need for high-quality institutional care. As we proceed in the next decade to develop a comprehensive national plan for care for the elderly, we urge that it include a range of options for patients and their families rather than depend on a pat formula. In a large, multiethnic, multiracial, geographically dispersed society such as the United States, local control and local imagination will be required to meet local problems creatively. The federal challenge is then to provide adequate inducements to ensure that care of the elderly is given sufficient priority in all areas of the country.

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$$\frac{0.304 \times 1{,}077{,}500}{1{,}237{,}144} = 26 \text{ percent}$$

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28. We thank J. Newhouse, A. Williams, and W. Schwartz for their helpful comments on an earlier version of this manuscript.

Sports Medicine Today

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The growth of public participation in all forms of sport around the world is a phenomenon of modern times. In the United States, competition in sports and the number of forms of sport began to increase in the 1920's; this growth accelerated after World War II and has apparently still not reached its peak. The most recent development has been the unparalleled interest of people of all ages in running, at all levels from jogging to supermarathon races of 50 to 100 miles.

Developments in the field of sports medicine have been among the factors that have made this unusual growth possible. An increased knowledge of exercise physiology has provided a scientific basis for the establishment of better program training and conditioning, including a rational approach to nutrition for those engaged in sports; an improved understanding of the mechanisms and specific pathologies of sports injuries has led to means of preventing these injuries; and the development of superior techniques for treating these injuries has made it possible to rehabilitate, and usually return to sports activity, those who have been injured. At the same time, this powerful popular movement into organized and informal recreational sports has stimulated the growth and sophistication of sports medicine.

The field of sports medicine is generally conceived to include not only the medical and paramedical supervision of the training and competition of the individual or team athlete or participant in recreational sports, but also the identification and provision of sports for those who are physically or mentally disadvantaged, the prescription and supervision of exercise programs to achieve and maintain physical fitness in the apparently healthy, and the use of exercise as a means of therapy for those who are not. This discussion will be limited to the first of these four areas.

The supervision of team athletes or individuals engaged in recreational sport by physicians, coaches, trainers, physiologists, and many other types of specialists can be conveniently divided into four areas: (i) preparation or conditioning, (ii) prevention of illness or injury, (iii) diagnosis and treatment of illness and injury, and (iv) rehabilitation and return to sports activity. Although in any one of these areas at any particular time one or the other of the supervisory personnel may play the principal part in dealing with the athlete, the common, and ordinarily the most effective, approach is that applied by several such specialists working with the athlete as a team. A most important member of this team is the athlete, who must play an active rather than a passive role.

Conditioning

The physical qualities that normally must be improved beyond resting or basal activity levels to permit effective performance in a sport include strength, speed, endurance, cardiorespiratory function, agility, flexibility, coordination, balance, and reaction time. Power, the product of force and velocity, is a function of strength and speed of movement. The integration of these qualities in terms of movement of the whole body, or a part of it, makes possible the practice of a sports skill. The skill is learned so that it may be repeated by a process of neuromuscular integration. Through repetition its practice becomes automatic, so that the individual may devote his (or her) attention to integrating individual skills through his sense of pace, anticipa-

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