An Operational Model for Teaching Geriatric Medicine in a Family Practice Residency Program

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Increased concern for our aging population has necessitated an evaluation of the role of gerontology and geriatric medicine in both undergraduate and graduate medical education programs. The instructional model developed for the Family Practice Residency Program at the University of Minnesota Medical School emphasizes removing barriers to health care for the aged and modifying attitudes of physicians toward normal aging.

Three general components make up the Geriatric Medicine Program: (1) clinical rotations in geriatric medicine in ambulatory residential facilities, in multilevel long-term care facilities, and in an acute care hospital; (2) geriatric case conferences; and (3) a seminar in gerontology and geriatric medicine. Evaluation of these components by the residents indicates a high degree of satisfaction with the experience and belief in its applicability to future practice.

Gerontological programs began to develop in scattered university undergraduate and graduate departments during the decade between the first White House conference on aging in 1961 and the second in 1971. However, medical schools generally have not presented well-organized programs in clinical geriatric medicine. Recently, interest has grown in developing models for teaching clinical geriatric medicine.[1-7]

The model developed for the residency program in Family Practice and Community Health at the University of Minnesota Medical School evolved over the past several years. In 1972, responding to the recognized medical needs of approximately 700 elderly citizens living in high-rise apartment units around one of our model family practice clinics, and sparked by interest from both our clinic medical staff and the Minneapolis Housing and Redevelopment Authority, the Department opened a small clinical facility in one of the high-rise housing projects for the elderly. Gradually the program expanded to serve patients in the extended care facilities of two adjacent community hospitals and also a large multilevel care facility for the elderly. In 1974, the Department of Health, Education, and Welfare funded a proposal for teaching clinical geriatric medicine and gerontology in our residency program.

As this program developed, we were aware that the realities of human aging, as well as misconceptions about this subject, complicate health care for the aged.[8] Some barriers are posed by the individual's physical limits, such as decreased sensory functioning, loss of memory, and disabilities restricting mobility, while others are socioeconomic barriers like limited income, segregation, and difficult access to transportation. We saw too that a negative attitude about caring for the aged patient, gerontophobia,[9] is widespread among physicians. Our perception of these problems among both groups – the elderly and their doctors – lay behind the formulation of our goals and our program to improve health care for the elderly.

A concept of human aging as a process about which generalizations may be made but which is also different for each individual forms the foundation of our approach to geriatric medicine. Our curriculum covers those physical, psychological, and social expectations one can reasonably have of old persons. In addition, we aim to present an image of what constitutes successful aging, including information to dispel some of the myths about the physical, mental, and sexual capacities of the aged.

In teaching physical examination and treatment of the patient, emphasis is placed on problems particular to old persons and the differences from younger patients that physicians must recognize for an accurate diagnosis. These differences develop gradually in an aging population and are not characteristics of an older population per se. However, because many are cumulative with time – for example, glucose tolerance test results which increase approximately 6 mg percent per decade – the older individual will vary most from the normative test value developed most commonly from a population of young individuals.[10] Besides glucose tolerance, differences in the electrocardiogram and basal metabolic rate should also be expected. Special interpretation of laboratory data from aged patients is needed because of such differences.

Eating and nutritional difficulties and mineral deficiencies are further examples of problems which require specific knowledge of the physiology and pathophysiology of the aged patient. Individualized drug treatment based upon an understanding of the absorption, metabolism, and clearance of drugs and chemicals in the older age group is a necessary consideration. Changes in body makeup with age, including a reduced proportion of body water and increased proportion of body fat, represent age-specific differences among people. Gradually diminishing function of the individual (for instance, decreased energy, decreased basal metabolism, and a need for fewer calories) is correlated with diminishing function of organ systems in aging persons. Prepared with an understanding of the normal aging process, residents bring to their subse-

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quent clinical experience that understanding as well as an awareness of how psychological and socio-environmental factors influence their aged patients' health.

Educational and Behavioral Goals

Remove Barriers to Health Care for the Aged

The unique problems and attempts at rehabilitating older individuals emphasize to the resident physician the attractiveness and, indeed, the necessity of the team approach to problem solving for the aged patient. Anticipating problems is a central issue of our approach to prospective geriatric medicine. A broad ecological understanding of the patient's physical, mental, and social capacities enables the geriatric medical team to identify possible dietary, economic, environmental, psychological, social, and medical problems in advance and to take whatever measures are available to prevent their occurrence.

Modify Attitudes

Reality testing in the clinical situation is most likely to develop positive attitudes in the resident physician caring for the elderly. The resident is expected to recognize in the physician-patient transaction those cognitive, affective, and psychomotor states that exist in himself/herself and in the patient that may contribute to a fuller understanding of the problems that exist and of their solutions. For this, the resident is expected to interpret nonverbal and verbal communication in the context of the patient's coping with physical, mental, and socio-environmental problems.

Exploring the patient's feelings about illness and his/her somatic perceptions will contribute toward the physician's role behavior in relation to the patient. These roles may be defined as (1) directive, (2) cooperative, and (3) emphasizing patient responsibility. Efforts toward understanding human aging and attitude development by the resident physician while caring for the illnesses of the aged, of necessity, include an assessment of one's own sensitivity toward these topics. The physician should be willing to listen to the older patient's assessment of his/her biographical material as it pertains to the problem under investigation.

The recognition and understanding of the coping mechanisms used by the aged patient are of primary importance in developing a program of treatment and prevention. Furthermore, in an effort to better recognize the patient's circumstances, the resident is expected to understand the role of the administrator and medical director of a geriatric care facility and to understand governmental regulations including Medicare, Medicaid, utilization review, medical audit, and professional standards review organizations (PSRO). Staffing problems in long-term care facilities are studied so that the resident physician can understand how elderly patients at times become victimized because of differences among staff members, particularly as they involve recognition and authority.[11-14]

Program

Having perceived the need for education in geriatric medicine and gerontology, and having determined two main goals for such instruction, we developed a multifaceted program. Its components include clinical experience in several settings: at a multilevel care facility where geriatric health teams are used, at a senior citizen high-rise apartment complex and a family practice model clinic where ambulatory care is provided, and at an acute care hospital; regularly scheduled conferences on geriatric cases; and a seminar on geriatric medicine and gerontology. These principal program elements are described below.

Clinical rotations in geriatric medicine have been in operation the longest, having been our initial attempt at a formal program. They began in the summer of 1972 at a clinic established in a high-rise apartment complex for the aged. Family practice residents work at the clinic for three months, providing both direct service to elderly patients and backup to the geriatric nurse practitioner there. To date, more than 20 residents have completed this rotation. Initially, the clinic was open for three half-days weekly, with an average of 80 patient visits per month. Currently there are an average of 150 visits per month and the clinic is available five half-days per week. In the beginning, only a nurse was at the site; presently geriatric nurse practitioners (one or two), family practice residents, and volunteers staff the clinic. In addition, a psychiatric consultant, medical sociologist, occupational therapist, physical therapist, and nutritionist are available as consultants on a regular basis and participate in a weekly conference.

In 1974, the clinical rotation was expanded to include, as a training site, a large, multilevel care (including skilled and intermediate levels of nursing care), and independent living facility for the aged. Twelve residents have rotated through this facility in a three-month rotation in geriatric medicine. The residents are supervised at this location by the medical director who is also a part-time faculty member in the Department of Family Practice and Community Health.

In 1975, the clinical program was further enlarged and formalized, adding resident involvement in the extended care facility and the oncology unit of an adjacent, acute care general hospital.

While initially available in only one of the six component family practice units, clinical rotations in geriatric medicine are now being organized in each of the other five affiliated units. Currently, two residents team up for a three-month rotation among all the clinical facilities mentioned (Table 1). Caring for older patients in these various settings as well as in the family practice clinic and the acute care general hospital provides residents with a range of clinical experience in geriatric medicine and maintains continuity of care of the patients.

Quarterly geriatric case conferences are held in each family practice training unit. Cases selected to demonstrate common problems seen in older patients, such as stroke, chronic brain syndrome, terminal cancer, arthritis, and depression, are presented by a first or second-year resident. A variety of consultants (medical specialties, nursing, social work, nutrition, etc) are present and participate with the family practice resident as a team in problem solving.

An introductory seminar in gerontology and geriatric medicine became a part of our program in 1974. It meets for 1½ hours per week for ten weeks and is offered three times each year. Topics relate to the biology, psychology, and sociology of aging. The course format is lecture-discussion; case illustration and clinical application are emphasized.

Table 1. Geriatric Rotation Schedule for Two Residents

Monday	Tuesday	Wednesday
7:30 AM Acute care hospital rounds — 2 residents assigned to preceptor 9:30-12:00 AM High-Rise Clinic with preceptor	8:00 AM Family medicine conference 9:00 AM Administrative staff meeting 11:00 AM Geriatric medicine resident conference	9:00-10:00 AM 1 resident in High-Rise Clinic, 1 resident at Multilevel Care Facility 11:00-1:00 PM 2 residents at Multilevel Care Facility for team rounds
Noon - Medicine Conference	**Noon**	**Noon**
1:00-3:00 PM 1 resident in High-Rise Clinic with preceptor 1:00-4:00 PM 1 resident at Model Family Practice Clinic	1:00-4:00 PM 1 resident with preceptor at Multilevel Care Facility 1:00-4:00 PM 1 resident at Model Family Practice Clinic	1:00-2:00 PM 2 residents on nursing rounds with nurse clinician 2:00-5:00 PM 2 residents at Model Family Practice Clinic
Thursday	**Friday**	**Saturday**
7:30 AM *Clinical gerontology rounds — 2 residents at High-Rise Clinic 9:00-10:00 AM 1 resident at High-Rise Clinic, 1 resident at Multilevel Care Facility 11:00 AM Patient Conference	9:00-12:00 AM 1 resident at High-Rise Clinic, 1 resident at Multilevel Care Facility	
Noon - Tumor Conference	**Noon**	**Sunday**
Reserved for Oncology, Rehabilitation, and Extended Care Rounds	1:00-4:00 PM 2 residents at Model Family Practice Clinic	

*Emphasis on the multifactorial (biological, psychological, sociological, environmental) approach to health and disease.

Program Evaluation

All components of the geriatric training program were evaluated during the academic year 1974-1975, using a variety of methods. Results are summarized below.

The clinical rotations lend themselves least well to quantitative evaluation. We believe that the most meaningful evaluation of the clinical geriatric experience is the perceived value of the rotation to the resident in his/her practice of medicine. Following, then, are excerpts of correspondence from residents now in medical practice.

"My geriatric training was one of the better organized phases of my two years of training in the Model Family Practice Clinic and, in retrospect, not even that was long enough, since this aspect is most important in family practice."

"I think very much of the overall geriatric program, but it was mainly a rehash of what I saw and did in medical school and internship – except for the rotation at the multilevel care facility. However, I don't think that most other residents were exposed to as much geriatrics as I was prior to residency. I believe that the earlier the rotation can be placed after the first year the better, and that more time should be spent on HEW, Medicaid, and other governmental requirements regarding patients in nursing homes."

"I feel comfortable dealing with geriatric patients, and for me personally that means that my training has given me enough experience. This was accomplished most by first-hand experience as opposed to the abstract. (That is, I believe first-hand experience with patients is more useful than classroom discussion). In actuality, the total training time devoted to geriatrics was probably not enough."

"I am working, at present, in a state mental hospital and we have a geriatric unit. The patients are very similar to those I saw during my training at the high-rise and the multilevel care facility."

Twenty-four geriatric case conferences were held at six training sites during the 1974-1975 academic year. Extensive evaluation was done on 12 of those conferences. Of the 216 persons attending one or more of the 12 conferences, 41 percent were residents, 16 percent were family practice faculty, and 43 percent were staff and students of other professions. The attendance rate of family practice residents is of interest: on the average, 72 percent of first-year residents and 86 percent of all residents attended the conferences.

After each conference, participants were asked to complete and return a brief questionnaire about the conference. The rate of return of the questionnaire was 69 percent. Of those responding, 92 percent agreed or strongly agreed that the material presented was professionally useful, and 83 percent agreed or strongly agreed that the information presented was personally useful. Fifty-nine percent believed that about a quarter of the material presented was new to them and 24 percent believed that half or more of the material was new to them. Participants appear therefore to value the conferences for the application of information to specific patients more than for the presentation of new material.

In their comments, respondents said they appreciated the multidisciplinary approach, the use of case presentations, and the opportunity for residents to be involved in discussion. They urged that patients be presented more often in person or via video tape. They also suggested that topical bibliographies relevant to case conferences be distributed so that participants could do follow-up reading.

A total of 27 residents registered for the seminar "Introduction to Geriatric Medicine and Gerontology." Most of them took a pretest and a post-test on their knowledge of geriatric medicine and gerontology. They also completed an attitude questionnaire on the first and last day of the seminar. There was a 21 percent increase in the knowledge scores from the pretest to the post-test. The pre-post analysis of the attitudinal questionnaire, however, showed very little positive change in attitude. These results may have occurred because the seminar did not affect the residents' attitudes, or because the questionnaire did not actually measure attitudes. Analysis of the results showed the questionnaire to have very low reliability (r=.42). During a discussion of the questionnaire, residents said they found many of the questions ambiguous and disagreed as to whether several items represented positive or negative attitudes. When only items judged to be clearly nonambiguous were compared, residents did show a slightly more positive attitude toward the geriatric patient after the seminar. Judging from their response to these items, residents seemed to feel that the elderly patient can lead a useful and stimulating life and that learning new information and skills is something that the geriatric patient wants and is capable of doing. Clearly, however, more research on resident attitudes with valid measurement tools is needed before the effects of seminars on resident attitude can be determined. The major outcome of our seminar seems to have been simply an increase in knowledge of gerontology.

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