

SPECIAL ARTICLE

RESEARCH PRIORITIES FOR ARTHRITIS PROFESSIONAL EDUCATION

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The need for improved educational programs in rheumatology is well recognized. In its 1976 Report to Congress (1), the National Commission on Arthritis and Related Musculoskeletal Diseases noted that only about 3% of individuals with arthritis were under the care of a rheumatologist. The overwhelming majority of arthritis patients received their care from primary care physicians, most of whom had received little or no special training in the management of rheumatic diseases. Because this pattern was unlikely to change,

the Commission recommended that more adequate training be provided to these professionals through improved programs for medical students, house officers, and practicing physicians. Likewise, because allied health professionals play a potentially significant role in the care of patients with rheumatic disease, and few have had arthritis-specific training, the Commission called for the development of training programs for allied health professionals at all levels.

In the years since the National Commission's report, progress has been made both in the availability of arthritis training and in the research base needed to propose, test, and disseminate more effective educational innovations. Much of this progress has come from educational activities and projects of the Multipurpose Arthritis Centers (MAC) program, developed and funded by the National Institutes of Health (2). Nonetheless, significant needs persist, and new challenges for educational research and practice have emerged. As the fifteenth anniversary of the Commission's report approaches, we consider it timely to review the current status of arthritis professional education and to propose directions for future rheumatic disease educational research.

On January 24-26, 1990, the third annual Multipurpose Arthritis and Musculoskeletal Diseases Centers' Conference on Educational Research was held in Ann Arbor, Michigan. The theme of the conference was "Research Priorities in Arthritis Professional Education," and the purpose was to establish a forum to collaboratively review the current work, define research needs, and propose future priorities. Participants included rheumatologists and allied health professionals with interests in education, as well as educational psychologists and health educators with

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interests in arthritis education and research. Sessions at the conference addressed four areas: 1) medical student and house officer education, 2) continuing education of primary care physicians, 3) education of allied health professionals, and 4) training in patient education for physicians. The purpose of the conference was not to restrict the range of fundable research issues, but rather to assist educational researchers in more clearly identifying high-priority topics and issues. This report summarizes the discussions that took place at the conference and the recommendations by conference participants in each area. (The fourth annual conference, on the theme of "Arthritis Patient Education," will be in April 1991.)

Medical student and house officer education

Significant improvements in the delivery of rheumatic disease care will require new approaches to the education and evaluation of medical students and house officers. Conference participants focused on three areas pertaining to research needs and priorities for medical student and house officer education: 1) evaluation of knowledge and clinical skills, 2) curriculum development and evaluation, and 3) teaching rheumatology in the ambulatory care setting.

Evaluation of knowledge and clinical skills. Although some improvement has occurred since the American Rheumatism Association (now the American College of Rheumatology) first reported that the rheumatology training received by most medical students is not optimal for their future medical practice (3), much remains to be done. Recent assessments of senior residents in internal medicine and family practice have shown their knowledge of clinical arthritis and of musculoskeletal examination skills to be quite variable and often unsatisfactory (4). At the conference, a report of studies conducted by investigators at the Case Western Reserve University MAC suggested that medical students continue to have little opportunity to learn and practice basic rheumatology history-taking and physical diagnosis skills during in-hospital clerkships. Students who participated in an objective structured clinical examination at the end of their medicine clerkship could perform only 66% of the required components of a hand and wrist examination and addressed only 24% of the required items on a history for pain and swelling.

Curriculum development and evaluation. The well-documented high prevalence of musculoskeletal disease and the reliance on primary care physicians to

provide care for patients with rheumatic disease has not yet resulted in increased attention to rheumatology content in medical school curricula. Many medical specialty groups have identified specific learning objectives which have provided a focus both for curriculum development and for the evaluation of innovative teaching and assessment methods (5,6). Although some rheumatology faculty members have identified teaching objectives, there is still a lack of agreement about which rheumatology skills and content areas should be mastered by trainees at different levels.

Several methods for teaching rheumatology concepts and clinical skills are being studied. Computerized patient simulations to teach diagnostic skills in five areas of rheumatology deemed appropriate for community hospital-based residents are under development at the University of Michigan MAC. These simulations are designed to help trainees in the ambulatory care setting gain experience with a wide range of rheumatic disorders. A study at the University of North Carolina MAC is evaluating a program in which physical therapists teach medical students basic musculoskeletal examination skills.

Teaching rheumatology in the ambulatory care setting. Over the last decade, the focus of research and development in medical education has turned increasingly to the ambulatory care setting. This new emphasis has been promoted by many national groups, to reflect current health care needs (7,8). Because most rheumatic diseases are chronic and patients with these diseases receive the majority of their care on an outpatient basis, rheumatology educators will be challenged to play a key role in this shift toward increased emphasis on medical education in the ambulatory care setting. Issues that have long been of interest in rheumatology education, such as psychosocial aspects of care, continuity of care, rehabilitation, and patient education, are becoming more mainstream issues within medical education generally. The challenge to clinical teachers in rheumatology—how to structure a meaningful educational session around a patient who is accessible for 30 minutes or less—is becoming a universal challenge.

Recommendations. There was a consensus among conference participants that new educational interventions are necessary for medical students and house officers. Also, there is still a need to develop appropriate learning objectives and to define effective models for teaching and evaluating medical students' and house officers' knowledge and clinical skills. Research addressing clinical teaching in rheumatology in

the ambulatory care setting is of particular importance.

Education of primary care practitioners

Effective continuing medical education (CME) in rheumatology requires a thorough understanding of the strengths and weaknesses of the target audience, in this case, primary care practitioners. At the conference, presentations and recommendations for educational research focused on 1) evaluating the knowledge, skills, and current practices of primary care practitioners in rheumatology and 2) designing and evaluating educational interventions to address identified CME needs.

Evaluating knowledge, skills, and current practices. Because CME is an extension of formal medical education, the clinical knowledge and skills acquired during medical school and residency are appropriate starting points in the assessment of needs for CME. In many parts of the US, academic rheumatology units are either nonexistent or relatively new. It is reasonable to assume, therefore, that many primary care practitioners have had little or no formal exposure to rheumatology in medical school and/or residency. Research, much of it begun under the aegis of the MAC program, has begun to provide an empirical basis for this assumption. A survey of a random sample of community-based general internists and family practitioners in Indiana conducted by investigators at the Indiana University MAC showed that only 57% of the sample had a rheumatology rotation available during residency. Although two-thirds of those who had a rheumatology rotation available to them participated, this group represented only 38% of the total sample. Future surveys with this group are planned to assess the strengths and weaknesses of primary care practitioners as they relate to the demands of contemporary arthritis management.

Designing and evaluating CME interventions. Other research initiated in MACs has begun to identify ways to address existing deficits in knowledge and skill, as well as ways to effect changes in current practice. For example, the use of trained patient instructors who evaluate and teach musculoskeletal examination skills was introduced in the University of Arizona MAC. Preliminary studies of the use of this teaching method indicated that it identified correctable skill deficits in many primary care practitioners (9). Although this technique is now used in many medical

schools, its full potential for inclusion in CME programs has not been realized.

Investigators at the University of Alabama MAC have examined the use of clinical algorithms to guide primary care practitioners caring for patients with rheumatic disorders. In one study (10), algorithms addressed commonly encountered problems such as low back pain and shoulder pain. An interesting finding in that study was the substantial attrition rate among physician participants (11). Given the almost universal success of clinical algorithms reported in the CME literature (12,13), this result was unanticipated and may have been related to the physicians' familiarity with the problems studied. A second study is testing an algorithm that addresses the use of methotrexate for rheumatoid arthritis patients. Given the reluctance of most primary care physicians to prescribe any disease-modifying antirheumatic drugs for patients with rheumatoid arthritis (14), it will be of interest to see if a similar attrition rate is found with the methotrexate algorithm, which addresses a topic with which most primary care physicians are not familiar.

Recommendations. Conference participants agreed that the goal of CME for primary care practitioners remains unchanged: to ensure the safe and effective diagnosis and management of patients with rheumatic disorders, with appropriate referral to rheumatologists. Because many potential CME participants have had limited exposure to rheumatology in medical school or residency, priority must be given to research that characterizes the knowledge, skills, and current practices of this target audience. In turn, effective models for ameliorating knowledge and skill deficits, which can be applied conveniently in a variety of settings, must be developed.

Education of allied health professionals

There is growing recognition of the importance of allied health professionals in addressing some of the major public health problems, particularly those associated with aging and chronic diseases such as arthritis. Former Surgeon General C. Everett Koop, in a recent address to the Joint Economic Committee on Technology and Health Care, suggested that the allied health professional should be the principal agent through whom we develop better systems to promote safe, healthful, and independent living for older people, particularly those with disabilities or chronic illnesses (15). Conference participants reported on

projects currently in progress involving collaborative work between allied health professionals and other researchers in the rheumatic diseases and suggested priorities for research in areas where the contributions of allied health professionals should be particularly important.

New approaches to health care delivery. There is accumulating evidence which suggests that positive health benefits may derive from more closely collaborative relationships between the patient and the health professional. Given the probability that allied health professionals will assume increasing responsibility in these areas, research concerning ways to train them effectively for those responsibilities should be initiated. A multidisciplinary group of investigators at the Northwestern University MAC has developed a program to train allied health professionals to conduct an intervention combining low-impact aerobic exercise and problem-solving discussion sessions for arthritis patients. Results have shown significant improvements in patients' physical and psychological status and general well-being (16).

Arthritis education for allied health professionals. During the last decade, investigators have documented deficiencies in the preparation of allied health professionals to care for patients with arthritis (17). Recently, the Case Western Reserve University MAC documented that non-physician health care professionals need more knowledge about arthritis, more information about techniques for patient self-care, improved resources and better access to resources to care for patients, and expanded research opportunities (18). At the Indiana University MAC, researchers are refining a model for the in-service education of public health nurses on arthritis screening and management. They have been able to effect modest changes in the frequency of the performance of screening for joint pain, joint swelling, mobility, hand function, and eight extraarticular parameters.

Potential for research by allied health professionals. To develop their full potential as contributors to rheumatic disease care, allied health professionals need to assume responsibility for generating part of the knowledge base for their practice. Investigators at the Cornell University and Hospital for Special Surgery MAC are developing a model training program for postgraduate and professional education in clinical research methods. Their 4-part training program has been designed to strengthen skills both in research design and in multidisciplinary collaboration for clinical studies in rheumatic and orthopedic disorders. This

program should stimulate additional efforts to promote the potential for scholarly research by allied health professionals.

Recommendations. Allied health professionals should be trained for a major role in collaborative patient-health professional programs. There should be an increased emphasis on arthritis in both the classroom and the practice curriculum of allied health professionals. Programs are needed to help allied health professionals participate fully and productively in clinical research.

Training in patient education for physicians

Participants focused on preparing rheumatologists to educate patients in the context of the usual office visit. Because no studies specific to rheumatology were available, research on the general training of physicians in patient education was examined with reference to four areas: 1) the receptivity in the medical community for the learning and teaching of patient education skills, 2) the impact of physician communication and teaching skills on patient care outcomes, 3) patient education skills currently employed by practitioners, and 4) the adequacy and extent of training in patient education received by physicians as part of medical school, residency training, and CME programs.

Receptivity to patient education training. Most physicians believe that patient education is an important component of their clinical practice and have become increasingly receptive to the need for improved training in this area. Instruction in patient education, however, is up against stiff competition for curriculum time. A survey of internal medicine residency programs accredited in 1985-1986 found that only 44% of 434 responding residency program directors reported that their programs offered mandatory training, and only 18% of the programs offered elective training, in patient education-related areas (19). Obstacles cited by residency directors included insufficient curriculum time (51%), lack of trained faculty (44%), and pressures to reduce both training costs (40%) and patient care costs (37%).

Impact on patient care outcomes. It has been shown repeatedly that physicians' communication skills and information-giving behaviors significantly affect patient outcomes, including knowledge, satisfaction, compliance, function, and health (20). However, there is as yet no clear sense of what methods

work best in the specific setting of the interaction between physicians and patients with arthritis.

Current patient education practices. Surveys of community physicians indicate that many practitioners attempt to educate patients to some degree, but for most topics, the majority of practitioners provide little or no direct education, and many feel unprepared and/or uncomfortable, and doubt the effectiveness of their efforts. A survey of the literature on informed consent (21) indicates that physicians often fail to communicate adequately about the risks and benefits of treatment, underestimate patients' desire for information, and overestimate patients' knowledge about their medical conditions. Patients often feel intimidated and ask fewer questions than they would like to. Studies by investigators at the University of California, Los Angeles MAC and the Robert B. Brigham MAC currently are evaluating interventions to improve physician-patient communication in the management of rheumatic conditions. Additional educational research in this area would be useful.

Current training in patient education. CME programs in patient education have been shown to have some impact in specific content areas, primarily smoking cessation and cardiovascular risk reduction. In one of the few studies of CME in arthritis (22), a 2-week preceptorship in arthritis management for primary care practitioners was followed by significant changes in physicians' behavior, including the use of diagnostic tests and corticosteroids, and improved functional outcomes. Although patient education was not a primary focus of the program, it is notable that after this training, physicians were significantly more likely to answer patients' questions and inform patients about their disease. Enhanced management skills apparently increased willingness to share information with patients. Training for patient education and more traditional CME directed at management skills in the context of arthritis care may thus be complementary.

Recommendations. Given the current lack of research on the training of health professionals in rheumatology patient education skills, there is a need for a sequence of research efforts. First, a review of actual, as well as recommended, patient teaching methods in the setting of clinical rheumatology is needed. Second, prospective studies need to be conducted to determine which methods are most effective and how to get caregivers to adopt and maintain them in practice. And third, ways to integrate patient education skills training into professional education programs need to be developed.

Discussion

This conference marked the first effort to assemble a group of rheumatologists and educators for the purpose of critically examining the status of research on professional education in rheumatology. Significant progress was recognized in several areas. First, innovative teaching models for medical students and house officers are being designed and tested. Second, specific educational needs of primary care practitioners are being documented, and both familiar and innovative forms of CME have been applied to the characteristic needs of physicians in practice. Third, the field of rheumatology will continue to benefit from the increased contribution of allied health professionals in the conduct of research that further defines and extends their role in promoting cost-effective patient care. Finally, the training of physicians to deliver more effective education for patients was recognized as an area of great importance, given the chronic nature of most rheumatic disorders and the current interest in methods of financing arthritis patient education (23).

The conference began with the recognition that significant progress is most likely to result when discrete educational projects possess three qualities: clinical significance, sound educational practice, and scientific rigor. The most exemplary work has come from active collaborations between the types of participants present at this conference: health professionals who value education as an important area of their scholarly work, and educational psychologists and health educators who devote significant portions of their efforts to the unique problems of rheumatology. It was also recognized that the specific projects that are the outcomes of these collaborations have varied in terms of the relative strengths of their clinical, educational, and scientific qualities. The vicissitudes of peer review (whether for funding or publication) have led some conference participants to question whether educational development (i.e., the translation of education theory into sound practice) as a review criterion is given adequate priority relative to scientific rigor and clinical significance. While conference participants acknowledged the need and desire for excellence in all three areas, the need for effective new professional education programs at all levels requires that appropriate consideration be given to projects which emphasize innovative educational development and have the potential for significant clinical impact.

Many findings cited during the conference were

derived, at least in part, from studies based in content areas other than rheumatology. Medical specialties vary significantly, and the illnesses, treatments, and settings, as well as the types of patients, are often quite different. Therefore, principles derived from educational research in one area may not apply across disciplines. Clearly, studies conducted in other fields are useful, but the need remains for more research focusing on problems and issues in the specific context of rheumatology. At the same time, the problems and patients typically encountered in a rheumatology practice may provide an ideal model for the study of general issues related to chronic illness, e.g., teaching in the ambulatory setting, continuity of care, rehabilitation, and adaptation to disability.

The need for multicenter collaboration was made apparent by the presentations at the conference. The generalizability of educational research remains an issue. Conference participants agreed that the number of available trainees, the logistics of experimental control, and the modest size of treatment effects often test the limits of statistical power in single-center experiments. It is hoped that the deliberations of this conference will help investigators to identify issues that are important enough to merit collaboration and multicenter investigation.

Finally, while the presentations at the conference were not intended to be exhaustive of the research on professional education in rheumatology, there was concern among participants that this body of research activity has not yet developed into a coherent pattern directed at addressing the significant problems raised in the National Commission's report. Our progress to date is a function of several variables: the interests of rheumatologists, the availability of education investigators, and funding. Further progress will, of course, continue to be governed by these variables. Nonetheless, we hope that this assessment of current status and research priorities will help those concerned with the education of health professionals in rheumatology to focus their efforts within a framework of well-defined common goals.

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