Illinois RMED: A Comprehensive Program to Improve the Supply of Rural Family Physicians

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Background: Rural areas of the United States are perennially medically underserved, and the state of Illinois is no exception. A recent survey showed that 75 of Illinois’ 84 rural counties are primary care physician shortage areas. In response to this chronic physician shortage, the Illinois Rural Medical Education (RMED) Program was developed by the University of Illinois College of Medicine at Rockford. The RMED program is a comprehensive, multifaceted program that combines recruitment, admissions, curriculum, support, and evaluation components and is longitudinal across all 4 years of the medical school experience. The admissions process seeks to select students who possess traits indicative of success in eventual rural family practice. These traits are fostered and developed by the 4-year rural curriculum, which emphasizes family medicine, community-oriented primary care, the physician functioning in the context of community, relevant aspects of the “hidden” curriculum, and service learning. After 6 years, RMED has graduated 39 physicians; 69% have gone into family practice, and a total of 82% have selected primary care residencies.

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Research has illuminated various characteristics of students and institutions that predict the likelihood of graduates entering rural primary care practice. Studies have also reported characteristics of students that are predictive of primary care careers. Crandell et al described affinity models for encouraging rural health careers. These models involve either a selection process favoring physicians with rural backgrounds or significant exposure during training to rural practice settings. Affinity models are based on the premise that physicians choose rural practice because they find it desirable. To improve retention of rural physicians, Pathman suggests incorporating community health concepts into the curriculum.

RMED focuses on family practice because family physicians are more than twice as likely as other physicians to settle in smaller, rural counties. Further, family practice is the only specialty whose physicians demonstrate a clear predilection for location in rural areas. Nationally, an average of 46.3% of family medicine graduates are located in towns of 25,000 or less, and 10.7% settle in towns of 2,500 or less. Thus, RMED developed as a longitudinal, multidimensional program with recruitment, admissions, curricular, support, and evaluation components. This paper describes the struc-
ture and components of the RMED Program and results of the program to date.

Methods

Admissions

All RMED candidates must initially apply to the College of Medicine and meet its eligibility criteria. They also apply to the RMED program through a secondary application process. Credentials, which include the RMED application, American Medical College Application Service Personal Statement, transcript, grade point average, MCAT scores, and three hometown letters of recommendation, are screened using criteria based on documented factors associated with orientation toward rural practice and family practice.

Rural markers include background in rural, underserved Illinois, hometown size of <10,000, and extended family living in rural Illinois. Family practice indicators include initial specialty preference, service orientation, evidence of leadership, family practice role models, and broad undergraduate education.

A faculty committee ranks the candidates and selects 25–30 for interviews, which are conducted by the RMED Recruitment and Retention Committee, a panel of 16 individuals from across the state with expertise in rural health care. Committee members individually evaluate candidates on the likelihood of practicing family practice in rural Illinois. Then, following group discussion, candidates are ranked. Top candidates receive admission recommendations, pending final approval from the College Committee on Admissions.

Admitted students sign a pledge or partnership agreement, promising to complete the 4-year rural curriculum and indicating a preference for family practice in rural Illinois. While there is no mechanism to enforce compliance, it is expected that careful selection of students, combined with their participation in a challenging rural curricular program, will increase the likelihood of fulfillment of intentions.

Four-year, Longitudinal Rural Curriculum

The RMED curriculum supplements the regular curriculum with a focus on family practice, community health, and rural context, as summarized in Table 1. The curriculum is designed around the four categories of physician-community activities summarized by Pathman et al: 1) identifying and intervening in the community’s health problems (ie, community-oriented primary care [COPC]), 2) sociocultural awareness in patient care, 3) informed and appropriate use of community health resources, and 4) assimilation into the community.19 In addition, students benefit from participating in Rockford’s longitudinal, ambulatory care curriculum.20 During the first 25 years of the Rockford site, 23% of graduates selected family practice, 48% practiced in primary care specialties, and approximately 14% practice in towns of less than 20,000.31

Student/Peer Support

Student/peer support is an important component of RMED. Before the first year of medical school, incoming students attend a summer New Student Orientation that focuses on the formal and informal medical education process,22 survival skills for the first year, the RMED program, and initiation of a group support and socialization process. Throughout the first years of medical school, RMED students meet monthly for dinner meetings that, in addition to support, are designed to teach the RMED curriculum in relation to various rural health care topics, COPC, public health, and family medicine concepts. Sessions are facilitated by community-based experts, University of Illinois Extension educators, and RMED faculty. Students improve computer skills, reflect on personal and professional goals, and develop adult learning skills with Internet-based assignments and e-mail communication. Sessions also provide the opportunity for students to interact and form a cohesive group.

Community Orientation

During their third year, students select their rural preceptorship communities, learn community assessment strategies, conduct a “windshield analysis”23 of this community, and define a COPC project to be implemented during the rural clerkship. Students are guided in this process by Illinois Department of Public Health-mandated needs assessment plans in local communities, which identify community health priorities. Students are assisted by both community mentors and RMED faculty.

Rural Preceptorship

The capstone of the 4-year curriculum is the fourth-year, 16-week rural family medicine preceptorship. The preceptorship focuses on and is divided into the dual goals of refining clinical skills in the rural context (60%) and completing community health projects (40%). Twenty-five rural hospitals have signed “Limited Affiliation Agreements” with the university, and 30 rural preceptors have faculty appointments. To ensure a high-quality experience, a student credentialing process has been devised, students and faculty set goals, RMED staff make two site visits, and there is continuous monitoring of the clerkship via laptop computer, with e-mail and a patient encounter program. Students log patient demographics, location of encounter, chief complaint, diagnosis, procedure, tests, and consultations, as well as the extent of student involvement in data gathering, diagnosis and management responsibilities, and educational quality of the patient encounter.24 Incorporating computer-based communication has created a “virtual clinical campus”25 for the RMED program. RMED faculty make comments and adjustments as necessary, and students have a complete record of their clinical experience, which has proved helpful to many students on residency interviews.
The 4-year community health curriculum culminates in completion of a COPC project. The COPC model familiarizes students with a set of knowledge and management skills different from those of the medical model, eg, population-based perspective and interdisciplinary approach.26,27 Students also complete a “Community Structure” study by following patients from the office into the community, noting the relationships between medical and health care decisions and the social, economic, governmental, and cultural aspects of the community. Community partnerships with rural hospitals and physicians, local health departments, social service agencies and associations, and the University of Illinois Extension are essential to RMED.

**Evaluation Methods**

Evaluation of the RMED Program is ongoing and occurs at multiple levels. First, the academic progress of RMED students is monitored in relation to the class and national average scores on the US Medical Licensing Examinations (USMLE). Second, residency placements by RMED students are compared to site, college, and national outcomes.

Third, students self-evaluate the effect of the first-year/second-year program at the end of each academic year. This evaluation uses a Likert scale to assess the students’ understanding of family medicine and community health concepts and computer skills.

Fourth, an analysis was conducted of the community health content of assignments completed from 1995–1998. Assignments included short e-mail essays on multiple community health topics, a journal account of a day spent with a rural family physician, an annotated bibliography on rural health issue selected by the student, and COPC projects developed by third-year students and implemented in the fourth year. Topics studied by students were compared with the priorities established by local health departments in their Illinois Project for Local Assessment of Needs (IPLAN) Program. Through descriptive and thematic analysis, three coders compared students’ focus on health care problems with community-defined priorities as established through the IPLAN process.

Fifth, family physician preceptors were surveyed to assess their views of students’ roles in the office, particularly related to students’ contributions to and integration into the office practice.

Sixth, data from student patient encounter logs have been compared to the American Academy of Family Physicians (AAFP) and Rockford longitudinal, ambulatory experience databases.
Finally, student posters describe their COPC projects and are used to evaluate students’ skills related to COPC. Evaluation involves both process and outcome measures, in a manner congruent with the COPC process, which involves community needs and capacity assessment, as well as design and implementation of a health intervention.

Results

The RMED program is 6 years old, has 112 current students and alumni, and has an incoming class of 20. Applications have been received from residents of 80% of Illinois’ rural counties. The number of applications has ranged from 18 for the first class of 5 students to a high of 77 for the average class of 17–20 students. Students now represent 64% of Illinois’ rural counties, their mean hometown size is less than 7,700, and 87% come from designated rural counties. Students have made good academic progress, passing USMLE Step exams with mean scores comparable to the remainder of the class and national averages. With three graduating classes (n=39) thus far, 69% of RMED alumni are in family practice residencies, with a total of 82% in primary care.

Student evaluations of the first-year/second-year curricular experiences indicate an increased understanding of rural family practice and COPC, a heightened awareness of rural community health resources, and increased comfort with e-mail and Internet usage. The qualitative analysis of e-mail assignments and community projects found student-defined themes to be highly congruent with the community-identified priorities of needs, as well as themes common to family practice, including continuity, patient education, practice diversity, and contextual care. Informally, students have also reported that RMED provides valuable personal support.

Based on preceptor responses to the survey concerning student integration and maturation in the clinical setting, preceptors observed that fourth-year students functioned as “junior partners” and merged into the fabric of the practice, on average, at week 8 of the experience. This positive observation demonstrates how students are able to give back to the practice in a variety of ways in return for their educational experiences.

Senior medical students’ rural clinical encounter data have been compared with encounter data from Rockford’s longitudinal experience and the AAFP databases. An analysis of senior medical students’ rural clinical encounter data reveals that they see up to 750 patients and are exposed to the full range of family practice. These data document the unique nature of this clerkship experience, guide curriculum revision, and are useful to students in their residency interviews.

Thirty-nine completed COPC projects cover a wide range of topics and have contributed to a number of successful community health interventions. Projects can be placed into four categories: health education/health promotion, environment and organization of the community, access and health care utilization, and illness and disease in the rural sector. To date, most of the projects fall into the category of health education/health promotion, and nearly all of the students conducting projects within this area have selected family practice residencies. Students delineate the process and outcomes of these COPC projects in poster format and participate in the yearly College of Medicine Research Day poster session. Posters are then available to local communities to demonstrate the students’ work and the community’s involvement in the educational process.

Discussion

Supported by a state-funded mandate, the RMED program was initiated in 1993, built on lessons from the literature and other rural programs, and continues to refine an educational program that spans a significant portion of the training pipeline for rural physicians in Illinois. Student activities enrich rural communities as a form of “service learning.” Statewide and community partnerships helped to create and continue to nurture the program and its students; partnerships also activate development of community health resources. Efforts, facilitated by a recent US Health Resources and Services Administration grant, are underway in five communities to better link the University of Illinois Extension, local health departments, and RMED students to ensure that community initiatives are sustained.

RMED is in its early stages of development, and the eventual practice location of alumni remains unknown. For multiple reasons—past experiences with personal physicians, rural background, the RMED curriculum, etc—a high percentage of RMED students (69%) have entered family practice residencies. Yet, 13% have entered other primary care disciplines, and 18% of students have entered specialty care residencies. To a large degree, these results should not be surprising. RMED students, like other medical students, experience the general socialization process of medical school. Some students will find, despite initial intentions, that family practice is not the right fit for them for future medical practice. Additionally, especially through third-year rotations, other students will find content and role models in other specialties that will attract them in decisions regarding career choice. It is not the policy of the RMED program to force adherence to a pledge made at the time of acceptance into the program. As Pathman pointed out, it is not clear from past studies the extent to which “positive” career outcomes are a consequence of the special training that learners receive versus the unique nature of the learners who select the programs. In delineating the nature-versus-nurture question, Pathman concludes that primary care educators will need to refine their understanding of their learners along with the impact of their teaching: “We will no longer be able to envision our primary role with students to be
that of career architects; instead, we must rediscover that our task is primarily to educate and only secondarily to guide careers.31(p 967) Nevertheless, a major component of RMED program evaluation, especially as graduates begin to enter medical practice, will continue to be examination of both specialty choice and practice location and patterns in these decisions by RMED graduates.

It is also important to keep in mind that the RMED capstone experience in the fourth year is not primarily designed to influence students’ specialty decisions. Rather, the focus is on placing students in a setting that closely mirrors their future rural practice. By this point in time, students have had the benefit of the college’s longitudinal, ambulatory care experience, as well the 3-year RMED curriculum, to help prepare them for the 16-week rural preceptorship. In most cases, specialty goals have already been determined, and the emphasis is on confirmation of choices and allowing students to experience rural practice. This gives students the opportunity to formulate their learning goals for future graduate medical education.

Future RMED challenges include enhancing the rural applicant pool, increasing rural residency training opportunities, and collaborating with other stakeholders to create a rural physician placement service. Overall, this comprehensive, collaborative, community health-oriented initiative can serve as a model for other states that attempt to tailor a program to meet the health care needs of their underserved, rural citizens.

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