

# Addressing the Scholarly Activity Requirements for Residents: One Program's Solution

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## Abstract

**Background** Scholarly activity as a component of residency education is becoming increasingly emphasized by the Accreditation Council for Graduate Medical Education. "Limited or no evidence of resident or faculty scholarly activity" is a common citation given to family medicine residency programs by the Review Committee for Family Medicine.

**Objective** The objective was to provide a model scholarly activity curriculum that has been successful in improving the quality of graduate medical education in a family medicine residency program, as evidenced by a record of resident academic presentations and publications.

**Methods** We provide a description of the Clinical Scholars Program that has been implemented into the

curriculum of the Trident/Medical University of South Carolina Family Medicine Residency Program.

**Results** During the most recent 10-year academic period (2000–2010), a total of 111 residents completed training and participated in the Clinical Scholars Program. This program has produced more than 24 presentations during national and international meetings of medical societies and 15 publications in peer-reviewed medical journals. In addition, many of the projects have been presented during meetings of state and regional medical organizations.

**Conclusions** This paper presents a model curriculum for teaching about scholarship to family medicine residents. The success of this program is evidenced by the numerous presentations and publications by participating residents.

## Background

Scholarly activity that encompasses research and quality improvement is an integral aspect of the curriculum in residency programs across clinical specialties. The Accreditation Council for Graduate Medical Education (ACGME) common program requirements stipulate that programs in all disciplines provide education to advance residents' knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.<sup>1</sup> Residents also must

be able to "systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement."<sup>1</sup>

Several programs that have successfully integrated scholarly activities, including research or quality improvement, for residents in different specialties have been described in the literature.<sup>2–15</sup> However, few have included information about common measures of scholarly activity, such as academic presentations or publications, to determine success of such educational interventions.

The difficulty of incorporating scholarly activity into the activities of residency programs has resulted in undesired consequences. In 2008, "limited or no evidence of resident or faculty scholarly activity" was the fourth most common citation given to family medicine residency programs by the Residency Review Committee for Family Medicine.<sup>16</sup> Limited evidence of scholarly activity is even more pronounced in family medicine fellowships, where "faculty and fellow scholarly activity lacking" was the second most common citation. Although the factors associated with these specific citations are not clearly known, having designated funding for resident scholarship has been associated with a reduced rate of a similar citation in internal medicine residency programs.<sup>17</sup> A need exists for family medicine residency programs to improve the amount of scholarly activity.

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<p>July – September</p> <ul style="list-style-type: none"> <li>○ Educational Activities<sup>a</sup> <ul style="list-style-type: none"> <li>▪ Quality Improvement and Beyond: Achieving Excellence in Health Care (<a href="http://www.musc.edu/qi">www.musc.edu/qi</a>)</li> <li>▪ Ethical Issues in Conducting Scholarly Activity: Institutional Review Board (<a href="http://www.citiprogram.org">www.citiprogram.org</a>)</li> <li>▪ HIPAA Compliance</li> </ul> </li> <li>○ Project Activity<sup>a</sup> <ul style="list-style-type: none"> <li>▪ Brainstorm Ideas</li> <li>▪ Write and develop a Concept Paper</li> </ul> </li> </ul> <p>October – November</p> <ul style="list-style-type: none"> <li>○ Institutional Review Board (IRB) Submission</li> <li>○ Quality Council Review</li> </ul> <p>December – March</p> <ul style="list-style-type: none"> <li>○ Data collection</li> <li>○ Monthly group meeting to review projects</li> <li>○ Bi-weekly discussion with faculty mentor</li> </ul> <p>April – May</p> <ul style="list-style-type: none"> <li>○ Data analysis</li> <li>○ Abstract Submission</li> <li>○ Preparation for presentation/publication</li> </ul> <p>May – June</p> <ul style="list-style-type: none"> <li>○ Research Presentation</li> <li>○ Submit for Publication</li> </ul>	<p><b>FIGURE 1</b>   <b>OVERVIEW OF CLINICAL SCHOLARS CURRICULUM</b></p>
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<sup>a</sup>Activities completed by PGY-2 residents only.

The specific aim of this article is to provide a model scholarly activity curriculum that has been successful in improving the quality of scholarship in a family medicine residency program, as evidenced by a record of resident academic presentations and publications.

**Methods**

The Clinical Scholars Program was implemented into the curriculum of the Trident/Medical University of South Carolina (MUSC) Family Medicine Residency Program in 1996. With the support of the department chair and program director, the program was developed to incorporate the principles and tools of quality improvement into residency training. An added aim was to foster residents’ critical thinking skills through participation in a research or quality improvement project. During the initial years of the program, participation was on an elective basis. Beginning in 1999, each upper-level resident (the program has approximately 20 postgraduate year-2 [PGY-2] and PGY-3 residents during any academic year) was required to participate. Since that time, 111 residents have participated in the program. Residents may work independently or in small groups of 2 to 4 individuals and must complete 1 project as a requirement for graduation.

To assist the residents, 4 faculty members were selected to serve both as mentors and coinvestigators for the resident projects. The faculty has experience and expertise in scholarly activity, having been involved in more than 150 peer-reviewed publications and 200 academic presentations. This mentor role is assigned to the faculty members as part of the contractual time allotment and has been funded by grants as well as included as a routine operating expense of the department and program.

<p>Background</p> <ul style="list-style-type: none"> <li>○ Is issue important for family medicine?</li> <li>○ Has previous work in area been referenced?</li> <li>○ Is conceptual approach consistent with existing theory?</li> <li>○ Is project question or hypothesis clear?</li> </ul> <p>Methods</p> <ul style="list-style-type: none"> <li>○ Is study population appropriate for the project?</li> <li>○ Is study design appropriate for the project?</li> <li>○ Is there clear plan for development of or use of existing valid measurement instrument?</li> <li>○ Is project scope feasible in current environment?</li> <li>○ Is project timeline reasonable?</li> <li>○ Is analytic approach specified in detail and appropriate for project?</li> <li>○ Are plans in place for IRB review?</li> <li>○ For Quality Improvement projects, are plans in place for review by the department’s leadership and clinical staff?</li> </ul> <p>Timeline</p> <ul style="list-style-type: none"> <li>○ Is appropriate amount of time given to each area of project?</li> <li>○ Can project be completed within the time constraints?</li> <li>○ Are there areas that can be consolidated/eliminated?</li> </ul> <p>Mentors</p> <ul style="list-style-type: none"> <li>○ Must be one of the faculty members for Scholars Program (3 MDs, 1 PharmD)</li> <li>○ Mentor must be appropriate for type of project planned</li> </ul>	<p><b>FIGURE 2</b>   <b>COMPONENTS OF THE CONCEPT PAPER</b></p>
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For this program, a specific longitudinal curriculum and associated schedule have been developed (FIGURE 1). During the first several months of each academic year, the residents and faculty meet on a weekly basis for 2 hours (Thursdays from 1:00 PM to 3:00 PM) to provide didactic education regarding research and quality improvement. In addition to these sessions, 2 computer-based learning modules must be completed by each PGY-2 resident. The first module is an Internet-based primer entitled “Quality Improvement and Beyond: Achieving Excellence in Health Care.” This module was developed by faculty and provides an introduction to the principles and practice of quality improvement. The second set of modules is from the Collaborative Institutional Training Initiative and focuses on human subject protection.

Concurrently with the educational activities described above, group discussions with the residents explore ideas for appropriate projects. The 4 faculty members assist in revising project ideas, providing additional education regarding quality improvement or research techniques, and ensuring that the projects are able to be completed during the allocated time frame. Faculty members also provide feedback to project ideas regarding ability to contribute positively to the research literature in primary care or to the quality of care provided in the associated practice.

After a project idea has been reviewed and accepted by the faculty, residents are required to develop and write a concept paper that describes their scholarly activity in sufficient detail in order to address specific questions (FIGURE 2). This step allows residents to demonstrate that they have completed an appropriate literature review, can describe the methodology in sufficient detail to make the project replicable, have an appropriate timeline for

completion of the project, and have identified a faculty member as a mentor for their project. These papers are read and critiqued by the other residents and the participating faculty members during group sessions.

Once the concept paper has been approved, residents are required to submit an application for research to the appropriate Institutional Review Board. Projects involving quality improvement also undergo evaluation by the departmental Quality Council. Members of the department's leadership as well as key members of the clinical staff constitute this council. The Quality Council reviews each proposed project and is used to facilitate implementation of changes within involved patient care activities.

After completing the introductory period, residents work independently for the next several months to implement the interventions and collect the data necessary for their projects. The residents meet collectively once per month on a regularly protected afternoon throughout the curriculum and provide a written project update for review. In addition, they also meet with their mentors at least twice per month to discuss their projects, review progress, and obtain assistance as needed. This monitoring allows for the timely review of projects that are not meeting objectives and identification of appropriate interventions to ensure completion within the designated time period.

Once data collection has been completed, residents perform the analysis with guidance and assistance from the faculty, using commonly available statistical software. If a project requires more complex statistical assistance, a research associate at the affiliated university is available to assist.

As a final step, the resident must prepare an abstract in standardized format (IMRAD) for review by faculty as well as for submission for local and statewide resident research symposia. Residents are encouraged to submit their projects for presentation at national and international meetings, and to prepare their project in manuscript form for submission to peer-reviewed medical journals for review and possible publication.

To examine the effectiveness of this program, the number of publications in peer-reviewed medical journals and the presentations during national and international medical meetings since 1999 were tracked.

## Results

During the most recent 10-year academic period (2000–2010), a total of 111 residents completed training and participated in the Clinical Scholars Program. This program has produced more than 24 presentations during national and international meetings of medical societies, and 15 publications in peer-reviewed medical journals.<sup>18–32</sup> Many projects have been presented during meetings of state and regional medical organizations. Expenses for travel

associated with accepted presentations are provided by the sponsoring institution as a benefit to the residents.

During the last several years, several projects have been selected as award winners at the state and national levels, and several of the residents have received awards for their research at the statewide family medicine scholarship symposia. The projects and associated manuscripts have also addressed various topics in patient care and resident education.

## Discussion

Based on the results noted in terms of scholarly presentations and publications, the Clinical Scholars Program has successfully integrated scholarly activity into family medicine residency training while addressing the ACGME competency of practice-based learning and improvement, and the requirement for resident participation in scholarly activity. The academic productivity of this program appears to be greater than the rate noted by Young et al<sup>33</sup> for similar types of residency programs (community based, medical school affiliated). The scholarly productivity noted compares favorably with the academic productivity of departments of family medicine as described by Mainous et al.<sup>34</sup>

The successful integration of the Clinical Scholars Program and associated curriculum may be attributed to several factors and are consistent with the characteristics of other successful programs.<sup>35,36</sup> First, the support of the current program director and department chair has allowed the program to develop and become successful by allocating resources in a way that demonstrates their understanding of the value of scholarship and a commitment to teaching it. Second, the program has been integrated into the weekly schedule of the residents, and they provide allotted time to complete their projects. Third, a core group of dedicated faculty has been involved and available to work with residents on specific projects. Fourth, a specific curriculum with a well-delineated timeline and specific task has been developed and implemented. Fifth, professional support has been made readily available for the residents. Finally, the program, the sponsoring institution, and affiliated consortiums have provided numerous opportunities for presentation of completed resident projects.

Limitations of our program include the feasibility of other residency programs to implement the specific curriculum described. The need for faculty with dedicated time and for time to be allocated for the program within the regular schedule of the residency program may present barriers to the successful replication of this intervention in other programs.<sup>37</sup> Furthermore, dedicated faculty with expertise and experience in scholarship may not be available, and finally, the program must find ways to cover the clinical needs of the program during the hours residents and faculty use for scholarly activity. We addressed this by having interns and nonparticipating faculty provide patient

care on the afternoons upper-level residents are involved in scholarly activity. Additional issues not addressed in this study were the ability to improve the critical thinking of participating residents and whether residents are able to incorporate the learned quality improvement activities into their future practices.

The Clinical Scholars Program appears to support the characteristics of a program that successfully incorporates scholarship into family medicine residency training. This educational innovation has improved the quality of medical education and health care in the Trident/MUSC Family Medicine Residency Program, where residents learn and participate in care. Our program serves as a potential model for other residency programs to use to help meet the needs of residency training, and to promote scholarship in research and quality improvement for residents and faculty.

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