

STATEMENTS

Advancing Pharmacist Scholarship and Research Within Academic Pharmacy

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An appropriate balance between teaching, scholarship, and service is important for a faculty member to have a satisfying and successful career. The relative emphasis on each area normally changes during the course of a career. Although some level of scholarly output is an ongoing and fundamental expectation of all faculty members, this activity is too often given low priority, particularly among faculty members in practice areas who may have a minimal background in research and large demands on their time for teaching and clinical service. Addressing this issue requires establishing a shared commitment between administrators and faculty members, as well as identifying or developing education programs that will ensure research competence for practice faculty members. This paper provides insights into the role that scholarship and research should have for all pharmacy faculty members and provides suggestions for how to better advance this critical component within academic pharmacy.

Keywords: peer-review, scholarship, research, faculty

Successful academicians must achieve an effective balance between teaching, scholarship, and service. This balance is important in terms of career development, professional satisfaction, and contribution to the institutional mission. In most cases, the appropriate balance will change during the course of a career as interests, successes, and responsibilities vary over time. One difficulty in achieving an appropriate balance is that, within the confines of a job description, a faculty member may experience competing pressures and make decisions on where to place their greatest effort without fully appreciating the consequences. For example, if success in scholarship diminishes, there is a strong tendency to decrease the effort devoted to such activities and instead increase effort towards teaching and/or service. While at times such movement may be beneficial, at other times it can be detrimental to the professional progress of a faculty member, as well as to his/her students, colleagues, school, and university. Similarly, a faculty member who is highly successful in research, or perhaps dependent upon grants for salary, may devote an inordinate amount of time to scholarly activity, while neglecting teaching, to the detriment of the academy.

Faculty members at universities have institutional expectations for research and/or scholarship. This is, after

all, a fundamental tenet of a university. For academic pharmacy in Canada and the United States, this expectation is built into accreditation standards. For example, Standard 1 from the Canadian Council for Accreditation of Pharmacy Programs states that the pharmacy school must be in an environment that has an academic mission including research and scholarly activities, and that research and scholarly activities be supported through appropriate infrastructure. In addition, the school must have a mission congruent with the university in terms of research and other scholarly activities, and the university must support interactions that advance the research mission of the faculty. The accreditation expectations for the institutional environment in the United States are similar. In addition, Standard 25 from the Accreditation Council for Pharmacy Education states that faculty members must be committed to “. . .the pursuit of research and other scholarly activities.” Thus, scholarship must be part of the fabric of all academic pharmacy programs so that pharmacy continues to be recognized as a research-oriented and evidence-based health profession, and continues to contribute to the improvement in overall health care.

WHAT IS SCHOLARSHIP?

Over the years, university-based scholarship has become synonymous with research. However, scholarship encompasses other activities and should be defined more broadly.¹ The definition clearly should include discovery

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of new knowledge, but also new (and improved) ways of doing things – a cornerstone of improving clinical practice.

Boyer² discusses 4 categories of scholarship: (1) the scholarship of discovery: traditional research; (2) the scholarship of integration: connecting information across disciplines and fitting one's own research into larger contexts; (3) the scholarship of application: translational research; and (4) the scholarship of teaching: studies into student learning and how best to advance this process. Pharmacy colleges and schools should value a diversity of scholarship; however, specific programs may emphasize some forms of scholarship over others. Having an appreciation of diverse forms of scholarship, as well as of the varied means in which such scholarship is communicated, is essential for participants on faculty review committees and administrators such as deans and department heads, so that all forms of scholarship are recognized and rewarded.

We believe that all scholarship, whatever its focus, has 3 essential components: innovation, peer review, and communication. (This represents a more concise list of characteristics than that provided by the National Academy for Academic Leadership.³) The nature of the innovation, the medium of communication, and the mechanism of peer review may differ, but all 3 components should be present for an activity to be appropriately labeled scholarship. Thus, while Boyer's delineation is helpful in recognizing the diversity of scholarship in which faculty members may be engaged, it can be misconstrued to equate activity in an area with scholarship. For example, teaching a course is *not* the scholarship of teaching, but studying the effectiveness of a particular mode of teaching could be developed as scholarship. In addition, a scholarly activity, no matter how theoretically important, has no value unless it is validated and disseminated.

THE IMPORTANCE OF SCHOLARSHIP IN PHARMACY PROGRAMS

Because, at its core, a university is a community of scholars, scholarship should permeate every pharmacy college and school. Pharmacy faculty members should, both individually and as a shared community, have a commitment to these responsibilities. This means that, with the exception of individuals hired exclusively for teaching or administration, all faculty members (tenure-track and non-tenure track) should engage in some form of scholarship, and that career progression should require a faculty member to excel within the full spectrum of their academic responsibilities. In the experience of the authors, faculty members who disengage from scholarship soon become ineffective as educators.

We presume that the societal value of scholarship and research (in particular, basic and translational research)

does not need to be defended to members of the academy. But why is it important for pharmacy programs in particular to be engaged in this impactful activity? First, we believe that pharmacy faculty members bring unique experiences and expertise to biomedical challenges. Without their contributions, advances will be less than optimal. Second, there are challenges that are primarily pharmacy-focused for which pharmacy leadership should be expected. These include, but are not limited to, the development of systems for safer medication use, improving medication adherence, and the development of novel drugs and drug delivery systems. Finally, the stature of pharmacy programs to the general public, within the institution, and to the academy at large, is greatly impacted by pharmacy being a profession grounded in science, research, and scholarship. Scholarly efforts are essential to maintain this stature and to enhance teaching and curricular innovation, as well as patient care. If colleges and schools of pharmacy are to meet the goals of developing inquisitive and creative graduates who are lifelong learners and change agents, they must lead by example and provide scholarly opportunities to stimulate creativity in their students.

BARRIERS TO SCHOLARSHIP

There are 2 major barriers to scholarship in pharmacy colleges and schools. Perhaps the most common barrier is time. Faculty members are exceedingly busy and scholarship activities are often deferred. For example, there may be pressure, both overt and subtle, from administrators and faculty members themselves, to focus on what is needed to deliver the pharmacy program on a daily basis rather than on longer-term scholarship activities. Nevertheless, it is incumbent upon faculty members to prioritize their time so that scholarship is not neglected, and for supervisors to ensure that faculty workloads allow scholarly pursuits. If scholarly activity is a clear component of well-constructed annual performance reviews, its priority will remain in the forefront.

The second major barrier relates to the research expertise and confidence of some pharmacy faculty members. The rapid growth of pharmacy colleges and schools in North America, and thus the number of faculty numbers, has resulted in an increased proportion of faculty members without substantial training in research or scholarship. Today, more than half of full-time faculty members in colleges and schools of pharmacy hold the PharmD degree (usually their first professional degree) as their highest credential. Most of these faculty members are also employed at junior levels and have minimal access to successful research mentors. Leaders of academic pharmacy programs will, therefore, need to ensure an environment for faculty member development in this

area. This requires a shared commitment between faculty members and administrators to provide sufficient resources for scholarship (both physical and time) so that faculty members can be successful.

NEED FOR PHARMACIST RESEARCHERS

Although the need for pharmacist-researchers was recognized in the Millis Commission Report in 1975,⁴ this need remains largely unmet 37 years later, despite some improvements. Addressing this need through postgraduate programs of excellence for pharmacy was originally done almost exclusively through traditional master's degree and doctor of philosophy (PhD) programs, largely in the basic sciences. Later, as clinical pharmacy began to blossom, high-quality post-bachelor of science PharmD programs were created that emphasized research and were a source of many of today's leaders in pharmacy. However, following the advent of the first professional degree PharmD, and the loss in North America of all (except 2 in Canada) post-BSc, 2- to 3-year PharmD programs, academic pharmacy has failed to produce/design a universally accepted credential to develop and recognize clinical pharmacy researcher expertise. Instead, a plethora of programs with widely varying emphasis on research have evolved, including residencies (1- and 2-year, both with and without a connected master of science (MSc) program), fellowships, MSc programs, and some certificate options. There are a few clinical pharmacy PhD programs in existence that use this well-recognized credential, but these programs have not become nearly as widespread in pharmacy as in other health professions.

Overall, there continues to be too few individuals with a pharmacy background pursuing a career in research. A 2006 White Paper from the American College of Clinical Pharmacy⁵ noted that the greatest barrier to clinical research is the lack of qualified clinical investigators. Also, many of the barriers facing clinical researchers in general are amplified for clinical pharmacy researchers. These include the difficulties in recruiting patients, conflicts of interest, and increasing regulation, particularly around privacy issues.

Fagan and colleagues⁵ reviewed the various postgraduate options available in pharmacy and recommended that: research fellowship programs be accredited, increases occur in combined residency/fellowship programs, there be expanded support for training of both new and mid-career investigators, a mentoring network be developed, and clinical pharmacy centers of excellence be created. Although these remain valid suggestions, maintaining a spectrum of options does not provide the necessary focus on a single academic credential that will provide evidence of research competence for clinical pharmacy researchers.

THE WAY FORWARD

Pharmacy researchers have the potential to contribute greatly to improving pedagogy as well as health care. Such contributions will require academic pharmacy to sustain a strong commitment to and involvement in scholarship. This would be facilitated if the pharmacy accrediting bodies would hold colleges and schools more accountable for meeting the existing standards relating to scholarship and research, perhaps by developing criteria that must be met. Such criteria could include metrics about the quality and quantity of research space, startup packages, faculty size, and the related metric of teaching loads and time.

Advancing research activities in colleges and schools of pharmacy, particularly in clinical areas, is a work in progress that requires new commitments from both administrators and faculty members. Establishing universal agreement about the academic credential that should be awarded for education in clinical pharmacy research would be a major step. Such an agreement would direct colleges and schools on where they should place their resources, and would give students confidence that the advanced education they receive will have credibility in all research settings.

Because it is well-established, the PhD is perhaps the preferred credential to document research expertise. Some suggest that novel PhD programs may better engage clinical researchers and shorten the time necessary to obtain this degree. For example, The University of Texas at Austin, jointly with the University of Texas at San Antonio and the University of Texas Health Science Center at San Antonio, has received approval for a PhD in Translational Science. This program emphasizes multi-disciplinary collaborative research and education. Similarly, efforts have begun at the University of Alberta to create an interdisciplinary PhD program with an emphasis on patient-oriented research. Such a program is expected to attract clinicians and train them to be excellent researchers, working either in clinical or academic settings. Putting in place clinician-responsive training and clinical research infrastructure may better position an academic institution to access new patient-oriented training and research resources, and lead advances in health care and systems innovation in the next 2 to 3 decades.

The major advantages of such PhD programs are expected to be an improved ability to attract a new cadre of excellent candidates who were dissuaded previously by the practical barriers of conventional PhD programs (unintegrated with clinical practice; requiring extended duration; full-time semester-based scheduling). Course content could be provided in a modular format with teaching resources shared across several faculties. Ideally, by following the European Higher Education Area: Bologna Process⁶, students would complete the PhD in 2 to 3 years.

The goal is to not sacrifice quality while minimizing time spent in formal education. While such programs can achieve the goal of shortening the time required to obtain a degree, it remains to be seen if they will produce successful researchers in today's competitive environment.

A parallel approach should be to make further efforts to develop and enhance dual-degree programs, in particular, combined PharmD-PhD degrees. A study of MD-PhD programs found that 81% of graduates were employed in academia and 61% had obtained research funding.⁷ These data provide evidence that such dual-degree programs in medicine are largely successful in training clinician-scientists who devote themselves to an academic research career. Importantly, established biomedical sciences represented the majority of focus for the PhD portion of the combined programs. This contrasts with the call by some within academic pharmacy to create unique "clinical pharmacy" PhD programs rather than combined programs that engage well-recognized and strongly funded basic science disciplines. Insufficient data are available to determine if such a paradigm will be successful in preparing clinician-scientists who will be competitive for extramural funding.

An important bridging mechanism to aid the development of existing clinical faculty members who may have been hired primarily to meet teaching needs but now find themselves with an interest in, and probably a requirement for, performing scholarly activities to advance their careers, would be to create novel mentoring programs. One approach is to hire someone whose main focus is research who would coach clinical faculty members on research design, developing and leading collaborations, grant writing, manuscript writing, etc. Another approach would be structured sabbaticals that include the possibility of obtaining an additional academic credential. Such sabbaticals could be divided into smaller units (mini-sabbaticals) to reach a defined outcome of research expertise over a period of a few years. Ultimately, all academic pharmacy programs must strengthen what they do in terms of scholarship for the profession to remain at the forefront of advancing health care.

CONCLUSIONS

Pharmacist researchers have the potential to contribute greatly to improving health care, particularly in

clinical and translational areas. Numerous barriers exist for these individuals to prepare and succeed in their field, including an inadequate background in research methodologies, the absence of a well-defined educational pathway to obtain pharmacy-related research expertise after receiving a PharmD degree, the extensive time required following clinical training to obtain an academic research credential, and insufficient time within an existing position to engage in scholarly activities. Some of these barriers can be overcome by faculty members making scholarship a greater priority in their daily work schedule, and doing a better job of integrating their personal interests with scholarly output. Administrators can assist by clearly articulating the importance of scholarship, and backing those words with actions including ensuring that faculty members have time for research and that their efforts are acknowledged/rewarded through merit and promotion decisions.

Further efforts to address these academic needs in the area of scholarship are clearly needed. Faculty members and administrators must work together on mechanisms designed to enhance research expertise and scholarly productivity among pharmacy faculty members, as well as create programs to prepare the next generation of pharmacy faculty members.

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