



## Scholarly contributions of pharmacist educators in family medicine: A five-year review



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### ABSTRACT

**Introduction and Objectives:** Pharmacists are well established as clinician educators in family medicine training programs. Little data are available regarding their scholarly contributions within these roles. The objective of this project was to quantify the scholarly contributions, through authorship and conference presentations, by pharmacists in family medicine through a review of current North American literature and conferences.

**Methods:** A retrospective review of scholarly contributions by pharmacists evaluated publications in eight family medicine journals and presentations at four major family medicine conferences from January 1, 2010–December 31, 2014. Data collected about the pharmacist authors and presenters included geographic location, affiliation, and credentials. For each scholarly work, primary authorship and type of interprofessional collaboration were evaluated.

**Results:** There were 418 unique pharmacists who produced 676 unique scholarly works during the study period. Pharmacist publications gradually increased from 2.5% to 4.4% of all reviewed publications, while pharmacist presentations have remained more stagnant, fluctuating between 3.0% and 4.0% of all presentations over the study period. Of all scholarly works during this time period, pharmacists were involved as interprofessional collaborators in 75.6% of the publications and 82.4% of the presentations.

**Conclusions:** Pharmacist involvement in scholarly works has increased overall during the five-year study period, yet is a small subset of the overall scholarly works in family medicine. Uniquely, this data identifies pharmacists as scholars and interprofessional collaborators. Pharmacists' role in family medicine scholarship appears to be growing.

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### Introduction

A family medicine residency program (FMRP) faculty member, as defined by the Accreditation Council for Graduate Medical Education (ACGME), is any individual who has received a formal assignment to teach resident and fellow physicians.<sup>1</sup> Furthermore, scholarly activity is defined as contributions to knowledge available to family medicine or its subspecialty fellowship areas, such as

peer-reviewed publications or presentations. FMRP faculty are required to make two scholarly contributions, on average, over five years.<sup>2</sup> In a letter from the ACGME to the Council of Academic Family Medicine (CAFM) in November 2014, faculty can now additionally consist of non-physician providers, including behavioral health providers and pharmacists.<sup>3</sup> Pharmacists are able to contribute to the scholarship requirements of FMRPs through their authorship and presentations.<sup>3</sup>

Historically, pharmacists have been recognized and described as clinical educators within FMRPs beginning in the late 1970s.<sup>4–7</sup> A 2002 review of pharmacist involvement in FMRPs found that pharmacists spent 43% of time in teaching, 37% in patient care, 12% in research activities, and the remaining time in administrative functions. Pharmacists in these roles are funded by a variety of sources including: college of pharmacy, FMRP, grants, and hospital based departments of pharmacy.<sup>7</sup> FMRP program directors recently described the benefits of

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a pharmacist's presence within a FMRP as providing a collaborative approach to pharmacotherapy education, promoting interprofessional patient care and improving patient outcomes.<sup>8</sup>

There is limited literature evaluating pharmacist involvement in scholarship, particularly in family medicine. Of the available literature, each followed similar methodology, where authors searched scholarly works for pharmacist credentialing within the research teams. A 1982 review evaluating pharmacist and physician co-authorship in both pharmacy and medical journals showed an increase in publications between 1961–1979.<sup>9</sup> However, a 1996 review, evaluating awarded grants proceeding to publication, reported a statistically significant decline in pharmacy practice publication rates between the early 1980's and 1996, without declines in other disciplines.<sup>10</sup> A 2008 review evaluated pharmacist authorship in 37 major medical journals between 1993 and 2003 and reported increased pharmacist involvement in authorship from 2.4% to 3.1% of all publications.<sup>11</sup> Currently, there is no literature describing scholarly contributions of pharmacists through presentations or evaluating overall interprofessional collaborations in scholarship. The study objective was first, to quantify the scholarly contributions of pharmacists to family medicine education and practice and second, to examine the interprofessional collaboration of these pharmacists with other disciplines through retrospective review of peer-reviewed authorship and presentations to achieve a better understanding of the breadth of scholarship by pharmacists in family medicine.

## Methods

A retrospective review of family medicine journals and national family medicine conferences from January 1, 2010 to December 31, 2014 was completed. Thirty-two family medicine journals were initially identified. Only journals from North America were included, and then ranked based on their 2013 impact factor. The nine journals with the highest impact factors were chosen for further evaluation. One journal, Family Practice, was excluded due to lack of author name credentialing. A similar search was conducted for conferences of major family medicine organizations in North America. Conferences were included if they were the main annual meeting for each national organization. Regional-based conferences were excluded. The journals and conferences evaluated are shown in Table 1.

Each publication in each edition of each journal was manually searched for authors with pharmacy degree credentials. When an article was identified with a pharmacist author, the pharmacist's name, credentials, location (state of practice), site of practice, affiliation, and publication title and objectives were collected. If multiple pharmacists were co-authors, this information was recorded for all pharmacists. Pharmacist involvement throughout this text was defined as inclusion as an author. Each publication was categorized as pharmacist-only or interprofessional based on collaborators of the publication. Credentials of other professionals who collaborated with the pharmacist were documented. For all scholarly works, it was also noted if a pharmacist was the first author. The same process was repeated for conference presentations by searching each conference brochure and abstracts. The combination of publications and presentations as a total is referred to as scholarly works throughout this text. The Institutional Review Board of the University of Pittsburgh determined review was not required.

## Results

Overall, 7953 publications were published in the eight family medicine journals and 10,551 presentations were given at the four

**Table 1**  
Journals and conferences evaluated and amount of pharmacist involvement in each.

Journals		
Journal name	Impact factor	Publications with pharmacist involvement
Canadian Family Physician	1.808	6.70%
American Family Physician	1.547	5.28%
Journal of Family Practice	1.515	4.65%
Annals of Family Medicine	5.434	4.19%
Journal of the American Board of Family Medicine	1.981	3.99%
Family Medicine	1.400	2.36%
Academic Medicine	2.934	0.65%
Family Practice Management	Not published	0.48%
Conferences		
Conference name		Presentations with pharmacist involvement
Society of Teachers in Family Medicine (STFM) Annual Spring Conference		5.11%
North American Primary Care Research Group (NAPCRG) Annual Meeting		3.66%
Family Medicine Forum (FMF) Annual Conference		2.35%
American Academy of Family Physicians (AAFP) Annual Assembly		0.57%

family medicine conferences over the five-year study period. Of all publications and presentations evaluated, pharmacists were involved with 279 (3.3%) publications and 397 (3.7%) presentations. Table 2 displays the demographic information of the pharmacists and their collaborators including credentials, affiliations, and locations. Pharmacist involvement with publications ranged from

**Table 2**  
Demographics of pharmacists evaluated.

Pharmacist characteristics (n = 418)	n (%)
Credential/degree <sup>a</sup>	
PharmD	379 (90.6)
BSPharm	33 (7.9)
BCPS	60 (14.4)
BCACP	8 (1.9)
Additional degrees	93 (22.2)
Students	6 (1.4)
Affiliation <sup>b</sup>	
School of pharmacy	140 (33.5)
School of medicine	105 (25.1)
Family medicine residency program	70 (16.7)
Department of family medicine	40 (9.6)
University	31 (7.4)
Other	27 (6.5)
Location	
South Atlantic (MD, DE, WV, VA, NC, SC, GA, FL)	60 (14.4)
Middle Atlantic (NY, PA, NJ)	54 (12.9)
East North Central (OH, IN, IL, MI, WI)	34 (8.1)
East South Central (KY, TN, AL, MS)	34 (8.1)
Mountain (MT, WY, CO, NM, ID, UT, AZ, NV)	29 (6.9)
West South Central (AR, LA, OK, TX)	26 (6.2)
West North Central (MN, IA, MO, ND, SD, NE, KS)	23 (5.5)
Pacific (WA, OR, CA, AK, HI)	23 (5.5)
New England (NY, NH, VT, MA, RI, CT, ME)	16 (3.8)
Canada	104 (24.9)
Outside of US/Canada	10 (2.4)
Interprofessional collaborators degrees (n = 1209)	
Medicine	649 (53.7)
PhD	185 (15.3)
Nursing	47 (3.8)
Physician + PhD	34 (2.8)
Social work	12 (1.0)
Other	282 (23.4)

<sup>a</sup> Some pharmacists had multiple credentials.

<sup>b</sup> Some pharmacists had multiple affiliations.

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