The Scholarly Brainstorming Project: An Initiative to Increase Scholarly Productivity in a Large Internal Medicine Program

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Abstract

Background: In the academic year 2014-2015, the Internal Medicine residency program at the University of Texas in Houston had 130 residents. Of those, only 13 of them published papers in peer-reviewed journals and 5 residents presented posters at local, state, or national meetings. Moreover, that year, in the Accreditation Council for Graduate Medical Education annual survey results, only 44% of our residents acknowledged the existence of scholarly opportunities.

Objective: To increase scholarly productivity and consequently, the perception of scholarly opportunities in our Internal Medicine residency program.

Methods: The Scholarly Brainstorming Project (SBP) consists of monthly meetings at the end of each ward block. The attendees are to brainstorm for ideas with potential for publication as case reports, retrospective or prospective research, literature reviews and/or quality improvement projects. Faculty members with research experience are present to facilitate the discussions. These ideas are collectively discussed, first in small groups and then as a whole; mentors are assigned, and expectations timetables established.

Results: Compared to 2015, the number of residents involved (7% to 220%), their scholarly productivity (300% to 700%), and the perception of scholarly opportunities (38% to 211%) grew considerably, compared to baseline.

Conclusions: Unlike other interventions proposed to increase scholarly productivity, SBP addresses the critical step of observing the daily reality of the physicians’ duties, identifying aspects of patient care that could potentially be converted into a scholarly product.

Keywords: scholarly; residency; internal medicine; research
Introduction

The progressive change in the role of academic physicians, from scientists to bedside educators, removes from the latter the knowledge and necessary training to instruct the new generations on how to include a scholarly approach in their daily medical activities (Marks, 2007; Bunton and Mallon, 2007).

The Accreditation Council for Graduate Medical Education (ACGME) requires residents to generate scholarly publications as a measure of productivity and excellence; the experience gained doing so is valuable for a successful research experience during fellowships, where such activity is also expected (ACGME.org, 2018). While multiple methods have been developed with the intention to increase scholarly productivity in residency programs of varied specialties, none of the ones reported centers the efforts on a simple reflection of what the ordinary medical activities of caring for patients on the wards might offer. A publication encourages academic faculty rather than residents to transform the busy clinical work into scholarly activities (Schrager, Pollart and Sadowski, 2019). Recent patient encounters, diagnostic and therapeutic dilemmas encountered in clinical practice for which little or no evidence-based literature exists represent the pearls of opportunities to publish. Quality improvement projects, case reports, musings on ethics in medicine amongst a host of other ideas are at our fingertips.

In the academic year 2014-2015, the Internal Medicine residency program at the University of Texas in Houston had 130 residents. Of those, only 13 of them published papers in peer-reviewed journals and 5 residents presented posters at local, state, or national meetings. Moreover, that year, in the ACGME annual survey results, only 44% of our residents acknowledged the existence of scholarly opportunities. These numbers had been progressively declining for 5 years and motivated the present intervention. To improve this disturbing trend, we devised the Scholarly Brainstorming Project (SBP).

Methods

The University of Texas McGovern School of Medicine Internal Medicine Residency program trains 130-140 on a 3-year journey of work and learning in four different hospitals, all of them unique. The SBP consists of monthly meetings at the end of each ward block in one of the four hospitals (Lyndon B. Johnson Hospital in Houston, Texas). Residents and students meet in groups to discuss their experiences for that month. The instructions delivered at the beginning of the meetings lead the attendees to brainstorm for ideas with potential for publication as case reports, case series, retrospective or prospective research, literature reviews, and/or quality improvement projects. Faculty members with research experience are present to facilitate the discussions, helping to refine the study question, to select the adequate outcomes, and to identify the proper research study design, when appropriate (Beckman and Cook, 2007). These ideas are collectively discussed, first in small groups and then as a whole; mentors are assigned, and expectations timetables established. Follow up emails, phone calls, and meetings help to facilitate the process following the initial conference. The projects birthed from SBP are tracked in a database in order to assure successful conferences or publications, or perhaps even abandoning a proposal.

The overall goals of the project are to improve the perception of the scholarly productivity in our division and increase the scholarly visibility in the medical community through the publication of more high-quality peer-reviewed articles, and/or presentations in local, state, national, and international meetings. Ultimately, stronger fellowship applications, faculty curricula, and the attraction of stronger residency candidates are secondary goals of the intervention.

We tabulated our scholarly productivity (number of residents involved, number of publications, and number of poster presentations) before and after the implementation of the SBP, and until June 2019 (last dataset available). We also compared the perception of scholarly opportunities before and after the intervention as per the results of
related questions in the ACGME annual resident survey.

Results

Figure 1 shows the number of scholarly products (peer-reviewed publications, posters presented in conferences, and books or book chapters) and the perception of scholarly opportunities by our residents according to the ACGME survey since the SBP started. Table 1 outlines details regarding the number of involved residents and the type and number of scholarly products. Compared to our baseline in 2015, there is an evident improvement in the number of residents involved, as well as their scholarly productivity that correlates well with the overall perception of scholarly opportunities disclosed by the group.

*Figure 1. Progress of perception of scholarly opportunities (in %) and all scholarly products (in numbers)*

![Progress of perception of scholarly opportunities and all scholarly products](image)

| Year         | Residents involved | Peer-reviewed publications | Residents involved | Presentations in meetings | Residents involved | Book Chapters |
|--------------|--------------------|----------------------------|--------------------|----------------------------|--------------------|---------------|
| 2014-2015    | 13                 | 41                         | 5                  | 9                          | 0                  | 0             |
| 2015-2016    | 14                 | 31                         | 53                 | 128                        | 2                  | 2             |
| 2016-2017    | 29                 | 91                         | 124                | 248                        | 9                  | 9             |
| 2017-2018    | 29                 | 77                         | 56                 | 147                        | 2                  | 2             |
| 2018-2019    | 21                 | 57                         | 99                 | 223                        | 3                  | 6             |

Scholarly productivity increased considerably after the introduction of this project.

The ACGME requires residents to participate in the production of scholarly endeavours; our experience is that such success is extremely valuable, especially as a platform to learn how to initiate scientifically excellent productivity during fellowships training (ACGME.org, 2018). One study, however, demonstrated a poor correlation between the number of publications that a trainee spawns during residency and fellowship (Prasad et al., 2014). The ACGME places greater value on the acquisition of tools learned during residency rather than on the number of scholarly products at that training level (Philibert et al., 2013). We believe our approach opens doors to early collaboration, mentoring by senior researchers, and increased productivity.

It is our opinion that projects which did not originate in the SBP environment seemed to contribute to the spirit and
creation of enthusiasm for opportunities to participate in the scholarly works which reflects the best we have to offer; a deeper and more meaningful connection with the science of medicine; enhancing the autonomous motivation of the learners (Kusurkar, 2019). As the project unfolded, we observed that the residents reached out to mentors more often, and both residents and students seemed to have passed on this enthusiastic approach to their younger colleagues who entered the program or shared in learning on the wards, in the clinics, and in the ICU. With four platforms available to our learners, the project appears ripe for such opportunities in a variety of patient care environments. It is our hope that sharing our experience in this area will create a wave of contagious enthusiasm to contribute to evidence-based medicine.

A host of interventions have been proposed to increase scholarly productivity: academic coaches or mentors (Dennis et al., 2019; McKinney et al., 2019); formal research curricula designed for trainees and faculty (Miner et al., 2019; Fenton et al., 2015; Neale et al., 2003; Carek et al., 2011; Coleridge, Smith-Barbaro and Knisley, 2004); and even reward or point-counting systems for the trainees involved in research (Emerick et al., 2013; Onishi et al., 2016). None of these interventions address the critical step of observing the daily reality of the physicians’ duties, identifying aspects of patient care that could potentially be converted into a scholarly product. Because of our efforts, there is an emphasis on the successful production of scientifically excellent, scholarly activity rather than the concern about how the product will be received. In this setting, markers of individual academic output such as number of papers in a specific period, number of citations of those papers, combinations of these variables, or authorship order represented less relevant outcomes in our project (Hirsch, 2005; Khan et al., 2019).

**Conclusion**

The SBP promoted reflection, led to the emergence of ideas worthy of scientifically excellent, scholarly endeavours, and increased enthusiasm amongst residents for vistas in scholarly pursuits they had not previously considered in our Internal Medicine residency program.

**Take Home Messages**

- The United States Accreditation Council for Graduate Medical Education (ACGME) requires residents to generate scholarly publications.
- The Scholarly Brainstorming Project (SBP) consists of monthly meetings at the end of each ward block aimed to brainstorm for ideas with potential for publication.
- Compared to a baseline in 2015, the number of residents involved, their scholarly productivity, and the perception of scholarly opportunities grew considerably after SBP started.
- Unlike other interventions proposed to increase scholarly productivity, SBP addresses the critical step of observing the daily reality of the physicians’ duties, identifying aspects of patient care that could potentially be converted into a scholarly product.

**Notes On Contributors**

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Figure 1. Source: the authors.

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**Appendices**

None.

**Declarations**

The author has declared that there are no conflicts of interest.

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**Ethics Statement**

This research was considered by the Committee for the Protection of Human Subjects (IRB) at The University of Texas Health Science Center at Houston on July 1, 2020, and deemed exempt because this is research involving the use of existing data that cannot be identified with individual subjects. The research was conducted in accordance with the Declaration of Helsinki.

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