

A Program for Promoting Clinical Scholarship in General Surgery

Madhukar S. Patel, MD, MBA, ScM,^{*,†,‡} David Tomich, MD,^{†,‡} Tara S. Kent, MD, MS,^{†,‡} Elliot L. Chaikof, MD, PhD,^{†,‡,§} and James R. Rodrigue, PhD^{†,‡,||}

^{*}Department of Surgery, Massachusetts General Hospital, Boston, Massachusetts; [†]Department of Surgery, Beth Israel Deaconess Medical Center, Boston, Massachusetts; [‡]Harvard Medical School, Boston, Massachusetts; [§]Division of Health Sciences and Technology, Massachusetts Institute of Technology, Cambridge, Massachusetts; and ^{||}Department of Psychiatry, Beth Israel Deaconess Medical Center, Boston, Massachusetts

OBJECTIVE: The Accreditation Council for Graduate Medical Education mandates resident physician training in the principles and applications of research. To provide a robust early foundation for effective engagement in scholarship, we designed a novel clinical scholarship program (CSP) for PGY1 general surgery residents.

SETTING, DESIGN AND OUTCOMES: In a general surgery residency training program, we assessed resident academic productivity (i.e., presentations, publications, and sustained engagement in clinical research) and self-efficacy to conduct clinical research, as well as the overall satisfaction of both residents and faculty mentors. The clinical research appraisal inventory was administered both before and after completion of the CSP rotation.

RESULTS: Totally, 44 categorical general surgery trainees and 23 faculty research mentors participated in the CSP from 2011 to 2016; 26 residents (59%) presented at regional or national meetings. Of the 35 residents who were 24 or more months beyond their PGY1 training period, 16 (46%) have published their CSP project, 5 (14%) report continued commitment towards publication, and 22 (63%) have ≥ 1 clinical research publications beyond their CSP participation during residency, excluding publications arising from subsequent formal research fellowships. Clinical research appraisal inventory responses indicate significant improvement ($p < 0.005$) in clinical research self-efficacy.

CONCLUSIONS: A structured CSP increases the confidence of trainees to perform clinical research and leads to significant contributions directed at addressing clinically meaningful problems in surgery. Faculty-guided resident

research at a very early stage of clinical training supplements other mentorship experiences and encourages the development of surgeons who will engage in life-long clinical problem solving. (J Surg Ed ■■■■-■■■. © 2018 Association of Program Directors in Surgery. Published by Elsevier Inc. All rights reserved.)

KEY WORDS: residency education, clinical research training, professional and career development

COMPETENCIES: Medical Knowledge, Practice-Based Learning and Improvement, Professionalism

INTRODUCTION

Critical challenges exist in all facets of the care of the surgical patient, both within and outside of the operating room. Our ability to effectively address these challenges will depend upon the development of future leaders who will embrace these challenges and engage in their solution as an intrinsic component of their role as skilled and compassionate clinicians. The capacity to assess and analyze the current state of clinical care as reported in the medical literature, the identification of associated clinical gaps in care, and the ability to effectively close these gaps through the formation of collaborative teams is the primary motivation for developing skills to engage in scholarship of all kinds. The Accreditation Council for Graduate Medical Education (ACGME) has established common program requirements that outline standards for training residents and fellows across all specialties in a variety of core competencies.¹ Educational program requirements mandate that residency curricula incorporate scholarly activities that “advance residents’ knowledge of the basic principles of research, including how research is conducted, evaluated, explained to patients, and applied to patient care.”¹

Correspondence: Inquires to James R. Rodrigue, PhD, Department of Surgery, c/o The Transplant Institute, Beth Israel Deaconess Medical Center, 110 Francis Street, 7th Floor, Boston, MA 02215; e-mail: jrodrig@bidmc.harvard.edu

Additionally, it is recommended that programs “allocate adequate educational resources to facilitate resident involvement in scholarly activities” and require that faculty “establish and maintain an environment of inquiry and scholarship with an active research component.”¹ Although requirements for resident scholarly activity are available for certain disciplines, guidance has not been provided regarding how best to achieve this goal.² Furthermore, the stringent mandates related to clinical time commitments during residency training makes it difficult to designate a dedicated research block, apart from more formal extended research fellowships.

A standard approach does not currently exist for providing surgical residents with a foundational framework to engage in scholarly activity. Each training program may choose to develop its own system for ensuring exposure and participation of residents. Thus, substantial variability exists in resident research curriculum.³ To date, there exists a paucity of reports, which describe strategies to meaningfully incorporate a curriculum to promote scholarship during the course of a residency in general surgery. Most program descriptions have been derived from community-based surgical residencies, as a consequence of the need to address citations by the residency review committee.⁴⁻⁸ Barriers to resident participation in scholarly activity include uncertainty in understanding the clinical relevance of scholarship, challenges establishing a mentor-mentee relationship, and difficulty in developing an approach to engage with and complete a scholarly project.⁹

To meet the pertinent ACGME requirements and, more importantly, foster an inquisitive environment that embraces early and sustained scholarship, we designed a program to promote the engagement of PGY1 general surgery residents in clinical research to address existing gaps in the care of the surgical patient. We report herein the curricular design of this initiative, termed the *Clinical Scholarship Program (CSP)*, and present our initial experience with respect to resident academic productivity, satisfaction, and self-assessed clinical research efficacy.

METHODS

CSP Objectives and Design

The CSP, implemented in July 2011, is a structured faculty-guided clinical research experience for all first-year categorical general surgery residents. The overall aim of the program is to provide a robust early foundation for effective engagement in scholarship, to foster a curious and inquisitive environment, and ultimately to promote the development of future leaders who will engage in solving current deficiencies that exist in the care the surgical patient. The program’s learning objectives are focused on meeting these aims (Table 1).

TABLE 1. Clinical Scholarship Program (CSP) Learning Objectives

- Understand the importance of scholarly activity
- Increase knowledge of study design and clinical research methodology
- Increase awareness of institutional and national clinical databases
- Learn how to apply basic statistical methods to analyze research data
- Increase awareness of the ethical issues in conducting clinical research
- Learn the requirements for the protection of human research participants
- Learn the institutional review board (IRB) processes, procedures, and policies
- Disseminate research findings to the broader scientific community

The CSP was designed with a focus on involvement of key department leaders, individualized pairing of resident participants with faculty research mentors, delivery of key didactic content, and application of knowledge through completion of a defined project (Table 2). Logistically, all incoming categorical surgical residents are paired with a faculty research mentor early in the academic year. Department faculty are solicited to submit to the CSP Director clinical research project descriptions that are reviewed for scope and resources necessary to complete the project. Potential faculty mentors are full-time surgical faculty with academic appointments at Harvard Medical School who are actively engaged in conducting clinical research, have demonstrated scholarly productivity, and are able to dedicate the effort necessary to facilitate a productive mentorship experience. Residents are required to meet with at least three potential faculty members and submit a rank-ordered list of project and mentor preferences. Pairings are made at the discretion of the CSP leadership team. This program focuses solely on clinical research, as a meaningful experience in translational science during the course of active clinical responsibilities is not considered feasible at the internship level.

Once resident-mentor pairings have been assigned, trainees further develop the proposed research project. In some instances, based on prior clinical research experience and graduate training, residents may submit their own project proposal with appropriate guidance from their mentor and final approval by the CSP Director. Residents meet with their mentors at least monthly to discuss the specifics of their project and design an action plan. In addition to the time devoted throughout the academic year, a 4-week period without clinical duties is allotted during the PGY1 year to provide a focused period of time to pursue the clinical research project and to allow engagement in CSP-related didactics. Data request, training for data and safety monitoring for human subjects research, and institutional

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