

Surgical Education

# Formal research training during surgical residency: scaffolding for academic success

Helen Hsieh, M.D.<sup>a</sup>, Francis Paquette, M.D.<sup>a</sup>, Shannon A. Fraser, M.D.<sup>a</sup>,  
Liane S. Feldman, M.D.<sup>b</sup>, Sarkis Meterissian, M.D.<sup>b</sup>, Gerald M. Fried, M.D.<sup>b</sup>,  
Simon Bergman, M.D.<sup>a,c,\*</sup>

<sup>a</sup>Department of Surgery, Jewish General Hospital, McGill University; <sup>b</sup>Department of Surgery, McGill University Health Center; <sup>c</sup>Lady Davis Institute for Medical Research, Montreal, Québec, Canada

**KEYWORDS:**

Education;  
Research training;  
Residency

**Abstract**

**BACKGROUND:** The purpose of this study was to determine the impact of a formal surgical research program (leading to a postgraduate degree) during residency, on future research productivity.

**METHODS:** We surveyed all North American graduates of the McGill University general surgery residency program between 1987 and 2005. The survey included questions on research involvement before, during, and after general surgery residency. This was combined with a literature search revealing all research publications of the participants. Outcomes were the yearly average of publications and awarded funding as faculty members.

**RESULTS:** Seventy-five of 119 graduates (63%) responded. Staff physicians who had participated in formal research programs during residency ( $n = 35$ ), compared with those who had not ( $n = 40$ ), produced more publications per year ( $2.8 \pm 2.3$  vs  $1.1 \pm 1.2$ ,  $P < .01$ ) and had greater funding success (81% vs 55%,  $P = .03$ ).

**CONCLUSIONS:** Residents who had participated in formal research programs during residency were more likely to have greater academic success.

© 2014 Elsevier Inc. All rights reserved.

A significant proportion of surgical trainees extend their training by an extra 1 to 3 years to participate in research programs during residency.<sup>1</sup> Research training during surgical residency is generally considered, by surgical trainees and program directors alike, to be a valuable adjunct to their education and a formative experience in their career development.<sup>1,2</sup> Despite this emphasis on research at an early stage, funding by national organizations for surgeon-

scientists has declined. In recent years, not only has the number of grant applications by surgeons decreased, but the percentage of awarded funding is now 30% less compared with physicians from other specialties.<sup>3</sup> Some warn that the “extinction” of the surgeon-scientist is a looming threat.<sup>2,4</sup>

Multiple barriers exist in the development of surgeon-scientists. For trainees, increasing educational debt and lost income associated with a prolonged residency provide a strong incentive to defer a research career.<sup>5</sup> In the era of work-hour restrictions, research activities may be seen as an additional force competing for residents’ time. With a calculated expense of \$41.5 million to train >600 research fellows during residency every year in the United States, the investment required to nurture surgeon-scientists may

The authors declare no conflicts of interest.

\* Corresponding author. Tel.: +1-514-340-8222 ext. 4611; fax: +1-514-340-7937.

E-mail address: [simon.bergman@mcgill.ca](mailto:simon.bergman@mcgill.ca)

Manuscript received November 16, 2012; revised manuscript April 17, 2013

be difficult to justify.<sup>2</sup> It has become obvious that to adapt our efforts and priorities, we must better understand how to get the most “bang” for our residency research training “buck.”

At our institution, residents traditionally spent the 3rd year “in the lab” involved in full-time research, often toward a graduate degree. This year was part of the 5-year government funding provided for training in general surgery, of which only 4 clinical years were required for eligibility for the Canadian specialty examination. When the American Board of Surgery moved to require 4.5 clinical years of training, our program had to reorganize rotations to include only 6 months of research in the government-funded 5-year residency. Some residents opted to extend their training nonetheless to obtain graduate degrees, but funding was a challenge until the establishment of the McGill Surgeon Scientist Program. This was established in 1999 to further encourage and fund, through philanthropy, surgical residents participating in mentored research projects with the goal of obtaining an advanced academic degree. Thus, throughout the years, several funded opportunities existed: from master’s and doctoral degrees in science (experimental surgery), clinical epidemiology, business administration, and education to truncated 6-month and 12-month research experiences, without a degree. A minority of residents decline research altogether or participate in ad hoc projects throughout their training. Our hypothesis was that formal surgical research programs via enrollment in postgraduate degree programs leads to greater future academic productivity.

The purpose of this study was to determine the impact of a formal surgical research program (defined as a program leading to a postgraduate degree) during general surgery residency, as opposed to a research experience gained through a nondegree program, on future academic research involvement and productivity as faculty members. The primary outcome used as a proxy for independent academic productivity was yearly average number of publications as an independent researcher. Secondary outcomes were current involvement in research and faculty funding.

## Methods

### Study population

All graduates (1987 to 2005) of the general surgery residency program at McGill University were identified in the Canadian Medical Directory and on the American College of Surgeons Web site. Because many residents pursue fellowships after graduation, this time window was chosen to represent surgeons who are likely to have had  $\geq 2$  years of experience to establish their careers. To produce a more homogenous sample of residents, the sample population was limited to Canadian and American graduates of the general surgery program currently practicing in North America.

## Data collection

An online survey was sent in July 2009. Additional e-mails were sent in August and September 2009. The survey included 24 fact-based questions relating to pre-residency postgraduate degrees, resident research experience, abstracts presented and funding during residency, fellowship training, as well as current academic rank, research involvement as faculty members, and salary support or funding as faculty members. There were also 4 subjective questions pertaining to attitudes toward research and support for research as residents and as staff physicians. In September 2009, MEDLINE, PubMed, and Google Scholar searches were performed for each survey respondent; the numbers of authored publications during and after residency were recorded. To account for varying career lengths, postresidency publications were divided by years in practice. Respondents were stratified into 2 groups: those who were involved in formal research programs (master’s or Ph.D.) and those who were not. The primary outcome was yearly average of publications as an independent researcher. Secondary outcomes were current involvement in research and faculty funding (research grants or salary awards).

## Statistical analysis

Data analysis was performed using SPSS version 20 (IBM, Armonk, NY). Categorical data were analyzed using chi-square tests, and continuous data were tested using Student’s *t* tests. Data reported as mean  $\pm$  SD, and statistical significance was set at  $P < .05$ . Responses to the subjective questions were stratified between surgeons currently involved in research activities and those who are not and compared in a descriptive fashion.

## Results

### Respondent characteristics

The survey was sent to 119 of the 156 graduates from the McGill University general surgery residency program identified in the database search. Twenty-seven graduates from Canada or the United States were excluded. Eight graduates could not be reached, and 2 had passed away. A total of 75 general surgical graduates (63%) completed the survey. Of these, 3 respondents had obtained master’s degrees and 1 had obtained a Ph.D. before residency. [Table 1](#) summarizes the characteristics of the respondents. The average length of clinical practice was 10.5 years, the majority were men (76%), and 87% completed fellowship training after residency. Although all survey respondents participated in research as residents, 68% were currently involved in research activities. Eighty percent hold academic positions with university affiliations. Although a large proportion of residents were involved in basic science research, most staff

Download English Version:

<https://daneshyari.com/en/article/4279209>

Download Persian Version:

<https://daneshyari.com/article/4279209>

[Daneshyari.com](https://daneshyari.com)