



## Full Length Article

# Guiding curriculum development of a national research training program in thrombosis medicine: A needs assessment involving faculty and trainees



Leslie Skeith<sup>a,b,\*</sup>, Marc Carrier<sup>a,b</sup>, Sudeep Shivakumar<sup>c</sup>, Nicole Langlois<sup>b</sup>, Gregoire Le Gal<sup>a,b</sup>, Ilene Harris<sup>d</sup>, Carol Gonsalves<sup>a</sup>

<sup>a</sup> Division of Hematology, Department of Medicine, University of Ottawa, Ottawa, ON, Canada

<sup>b</sup> Clinical Epidemiology Program, The Ottawa Hospital Research Institute, Ottawa, ON, Canada

<sup>c</sup> Division of Hematology, Department of Medicine, Dalhousie University, Halifax, NS, Canada

<sup>d</sup> Department of Medical Education, University of Illinois-Chicago College of Medicine, Chicago, IL, United States

## ARTICLE INFO

## Keywords:

Research  
Education  
Needs assessment  
Thrombosis  
Curriculum

## ABSTRACT

**Background:** Several barriers exist for training and retention of clinician scientists, including difficulty in navigating research-related tasks in the workplace and insufficient mentorship.

**Objective:** Our aim was to identify what core research knowledge and skills are important for the success of clinician scientists in thrombosis research, and trainees' perceived confidence in those skills, in order to develop a targeted educational intervention.

**Methods:** A pre-tested online survey was administered to trainees and research faculty of the Canadian thrombosis research network, CanVECTOR, between September 2016 and June 2017. The importance (research faculty) and confidence (trainees) of 45 research knowledge/skills were measured using a 5-point Likert scale.

**Results:** The survey response rate was 49% (28/57) for research faculty and 100% (10/10) for trainees. All research faculty rated developing a good research question, grant writing and writing strategies for successful publication as 'very' or 'extremely' important for trainees to learn to better transition in becoming independent researchers. Other important areas included practical aspects of research. A qualitative thematic analysis of open text responses identified 'time management' and 'leadership and teamwork' as additional important research skills. Confidence reported for each topic varied across trainees. There were three research knowledge and/or skills that  $\geq 75\%$  of research faculty deemed highly important and  $\geq 50\%$  of trainees reported lacking confidence in: grant writing, the peer-review grant process, and knowledge translation strategies.

**Conclusions:** Developing a good research question, communicating research ideas and results and the practical aspects of research are important areas to focus future efforts in thrombosis research training.

## 1. Introduction

Several barriers exist in the training and retention of clinician scientists, physicians who dedicate a substantial part of their career to basic science, translational, clinical or medical education research [1,2]. Among trainees who are interested in research, challenges in training include how to best integrate research and clinical training, delayed or reduced financial remuneration, limited protected research time, insufficient infrastructural support, the changing gender balance, lack of mentorship and support for trainees in the research environment [1,3–6]. While certain barriers may be best addressed through system-level change, navigating research-related tasks or insufficient mentorship may be amenable to an educational intervention [2]. Establishing mentored research training programs can improve the success of

trainees' careers based on the number of grants awarded [7–9], protected time for research [8], published peer-reviewed publications [8,10,11] and a perceived increase in trainees' knowledge, confidence, and sense of preparedness to pursue a career in research [12].

Similar to other medical specialties, recruitment and training of clinician scientists within thrombosis medicine has been challenging [13]. In 2015, a Canadian Institutes of Health Research (CIHR) funded national collaborative research network, CanVECTOR (Canadian Venous Thromboembolism Clinical Trials and Outcomes Research), was developed to enhance venous thromboembolism-related research, training and knowledge translation across Canada. One of the goals of the CanVECTOR network is to "enhance our world-class venous thromboembolism research capacity via a unique national research training, mentoring, and early career development program that will

\* Corresponding author at: The Ottawa Hospital, Centre for Practice-Changing Research, 501 Smyth Rd, Box 201, Ottawa, ON K1H 8L6, Canada.  
E-mail address: [lskeith@toh.ca](mailto:lskeith@toh.ca) (L. Skeith).

produce independent health researchers who will lead patient-oriented and health services research” [14]. We aim to create a national research program that targets key gaps in trainees' research knowledge and skills, to better guide the development of independent and successful clinician scientists in the area of thrombosis medicine. In an era where research funding and clinician scientists' protected time is finite and highly valued, research training programs that supplement formal masters or doctoral programs need to be focused and meaningful.

We completed a targeted needs assessment with faculty researchers and thrombosis medicine trainees interested in research, in order to identify key curriculum areas for a national research training program. By better understanding what core research knowledge and skills are important for the success of clinician scientists in thrombosis research, and trainees' perceived confidence of those skills, we can better target our educational interventions. With the results of our needs assessment, we provide suggestions for implementing and evaluating a research curriculum within the area of thrombosis medicine.

## 2. Methods

Our curriculum development is based on Kern's six-step approach to curriculum design, with a focus on the needs assessment [15]. The focus and scope of the needs assessment survey was refined after a focus group with five trainees and a strategic planning meeting with additional stakeholders [16,17]. An online survey was distributed by the CanVECTOR network to all thrombosis research faculty ( $n = 57$ ), and CanVECTOR thrombosis fellows ( $n = 10$ ), defined as trainees who had a funded thrombosis research fellowship, between September 2016 and June 2017. Demographic characteristics including base specialty, years in practice, formal research training, type of research and percentage of time allocated to research per week, was collected. Using a 5-point Likert scale, faculty were asked to rate the importance of 45 research knowledge or skills for thrombosis fellows to develop, to better transition in becoming independent researchers (ranging from not at all important (0) to extremely important (5)). Trainees were asked to rate their confidence level on those same research knowledge and/or skills, ranging from not at all confident (0) to very confident (5). The 45 research knowledge and/or skills listed was developed by a senior research associate and thrombosis researcher (N.L. and L.S.) based on a step-by-step approach to daily clinical research tasks, which was supplemented by a list of curricular topics from existing national or international research training programs. To further refine what topics were considered most essential and to ensure no significant areas were missed from the preceding survey, an open-ended question was included, asking faculty and trainees to ‘list the top three research knowledge and/or skills that you believe are most important for CanVECTOR thrombosis fellows to develop and why?’ The survey questions were piloted (N.L. and C.G.), which included cognitive pre-testing of the survey. Research ethics submission was waived by the Ottawa Health Science Network Research Ethics Board.

Nominal and ordinal data were reported based on proportions (%) of survey responses. Research knowledge and skills were highlighted as important a priori when  $\geq 75\%$  of research faculty rated the knowledge or skill as ‘very important’ or ‘extremely important’ or when  $\geq 50\%$  of trainees rated their confidence level of a knowledge or skill as ‘not at all confident’ or ‘not very confident’. Subgroup analyses were conducted to evaluate whether the perceived importance of knowledge or skills differed according to level of experience ( $\leq 10$  or  $> 10$  years in practice) or protected time for research ( $\leq 50\%$  versus  $> 50\%$  protected time per week) of research faculty, using the Fisher's exact test.

Open text responses were analyzed using thematic analysis by two authors (L.S., C.G.) using focused coding based on the categories of research knowledge/skills from the survey, and open coding to identify emerging themes [18]. Any discrepancies were resolved through consensus. Member checking with trainees took place at a follow-up CanVECTOR meeting. Data were collected using Qualtrics survey software

**Table 1**  
Demographic characteristics.

	Faculty ( $n = 28$ ) N (%)	Trainees ( $n = 10$ ) N (%)
Specialty		
Hematology	17 (60.7)	8 (80.0)
General Internal Medicine	8 (28.6)	1 (10.0)
Emergency Medicine	1 (3.6)	0 (0.0)
Cardiology	0 (0.0)	0 (0.0)
Respirology	1 (3.6)	0 (0.0)
Other	2 (7.1)	1 (10.0)
Years of independent practice		
< 5 years	3 (10.7)	–
5–10 years	6 (21.4)	–
11–20 years	8 (28.6)	–
21 or more years	11 (39.3)	–
Research conducted in the last 5 years		
Basic science	4 (14.3)	3 (30.0)
Clinical	27 (96.4)	8 (80.0)
Medical education	3 (10.7)	1 (10.0)
Knowledge translation	7 (25.0)	1 (10.0)
Quality improvement/patient safety	9 (32.1)	2 (20.0)
Time allocated to research per week in current or future practice <sup>a</sup>		
0–25%	11 (39.3)	1 (10.0)
26–50%	7 (25.0)	2 (20.0)
51–75%	7 (25.0)	5 (50.0)
76–100%	3 (10.7)	2 (20.0)
Formal research training		
Yes	18 <sup>b</sup> (69.2)	8 (80.0)
No	8 (30.8)	2 (20.0)

<sup>a</sup> Faculty: Current amount of protected time allocated to research (versus clinical care or administration) per week; Trainees: Percentage of time trainees see themselves allocating to research (versus clinical care or administration) per week when in independent practice.

<sup>b</sup> There were 16 faculty with masters and/or doctoral degrees and 2 faculty completed clinical epidemiology research courses in their fellowships.

(Qualtrics Inc., September 2017, Provo, UT), and analyzed using SPSS software (IBM SPSS Statistics, Version 24.0, Armonk, NY).

## 3. Results

The response rate among CanVECTOR research faculty and trainees was 49% ( $n = 28$ ) and 100% ( $n = 10$ ), respectively. Among the research faculty, the majority of the respondents were practicing as hematologists (60.7%), had  $> 10$  years of experience in independent practice (67.9%), and had conducted clinical research in the last 5 years (96.4%) (Table 1). Most trainees were enrolled in or had completed hematology training (80%) and had conducted clinical research in the last 5 years (80%) (Table 1). Among the trainees, 70% envisioned themselves with over 50% protected time dedicated to research (versus clinical or administrative care) per week when they enter independent practice. In contrast, the majority (64.3%) of research faculty had  $< 50\%$  of their time dedicated to research per week (Table 1).

Research faculty were asked to rate the importance of 45 knowledge or skills for CanVECTOR Thrombosis Fellows (trainees) to develop, to better transition in becoming independent researchers (Table 2). Among 45 knowledge or skills, 3 were deemed ‘very’ or ‘extremely important’ by 100% of research faculty: developing a good research question, grant writing and writing strategies for successful publication; 13 additional knowledge/skills were deemed ‘very’ or ‘extremely important’ by 75% of research faculty (Table 2). Trainees had low confidence for 13 knowledge/skills, but confidence levels varied across trainees (Table 3). Work-life balance in research was only identified as ‘very’ or ‘extremely important’ by 44% of faculty, whereas 30% of trainees rated their current confidence level as ‘not very confident’. There were 3 research knowledge and skills that  $\geq 75\%$  of research faculty deemed as highly important and  $\geq 50\%$  of trainees reported as

Download English Version:

<https://daneshyari.com/en/article/8679675>

Download Persian Version:

<https://daneshyari.com/article/8679675>

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