Canadian Journal of Cardiology ■ (2016) 1–5

Training/Practice
Training in Cardiovascular Medicine and Research

Trainee Perceptions of the Canadian Cardiac Surgery Workforce: A Survey of Canadian Cardiac Surgery Trainees

Holly E.M. Mewhort, MD,[a] Mackenzie A. Quantz, MD, FRCSC,[b] Ansar Hassan, MD, PhD, FRCSC,[c] Fraser D. Rubens, MD, FRCSC,[d] Zlatko I. Pozeg, MD, FRCSC,[e] Louis P. Perrault, MD, PhD, FRCSC,[f] Christopher M. Feindel, MD, FRCSC,[g] and Maral Ouzounian, MD, PhD, FRCSC[g]

[a] *Division of Cardiac Surgery, Libin Cardiovascular Institute of Alberta, University of Calgary, Calgary, Alberta, Canada*

[b] *Department of Cardiac Surgery, University of Western Ontario, London, Ontario, Canada*

[c] *Department of Cardiothoracic Surgery, Saint John Regional Hospital, Saint John, New Brunswick, Canada*

[d] *Department of Cardiac Surgery, University of Ottawa Heart Institute, Ottawa, Ontario, Canada*

[e] *Department of Cardiac Surgery, St Boniface Hospital, University of Manitoba, Winnipeg, Manitoba, Canada*

[f] *Department of Cardiac Surgery, Montreal Heart Institute, Université de Montréal, Montréal, Quebec, Canada*

[g] *Division of Cardiac Surgery, Peter Munk Cardiac Center, University of Toronto, Toronto, Ontario, Canada*

ABSTRACT

Management of cardiac surgery health human resources (HHR) has been challenging, with recent graduates struggling to secure employment and a shortage of cardiac surgeons predicted as early as 2020. The length of cardiac surgery training prevents HHR supply from adapting in a timely fashion to changes in demand, resulting in a critical need for active workforce management. This study details the results of the 2015 Canadian Society of Cardiac Surgeons (CSCS) workforce survey undertaken as part of the CSCS strategy for active workforce management. The 38-question survey was administered electronically to all 96 trainees identified as being registered in a Canadian cardiac surgery residency program for the 2015-2016 academic year. Eighty-four of 96 (88%) trainees responded. The majority of participants were satisfied with their training experience. However, 29% stated that their clinical and operative exposure needed

RÉSUMÉ

La gestion des ressources humaines en santé (RHS) dans le domaine de la chirurgie cardiaque s'est révélée difficile en raison du mal qu'ont les récents diplômés à se trouver un emploi et de la pénurie de chirurgiens cardiaques qui est prévue dès 2020. La durée de la formation en chirurgie cardiaque empêche l'offre en RHS de s'adapter en temps opportun aux fluctuations de la demande, ce qui oblige notamment à gérer la main-d'œuvre active. La présente étude expose en détail les résultats de l'enquête sur la main-d'œuvre de 2015 de la Société canadienne des chirurgiens cardiaques (SCCC) entreprise dans le cadre de la stratégie de gestion de la main-d'œuvre active de la SCCC. Une enquête comportant 38 questions a été réalisée par voie électronique auprès de 96 stagiaires inscrits dans un programme de résidence canadien en chirurgie cardiaque pour l'année universitaire 2015-2016. Quatre-vingt-quatre des 96 (88 %) stagiaires y ont

Job availability for cardiac surgery graduates has been limited over the past decade because of a mismatch in supply and demand within the cardiac surgery workforce. Perceived uncertainty in the job market has driven a reduction in medical student interest in cardiac surgery,[1] with significant vacancies in cardiac surgery training programs across Canada.[2,3]

Given the length of cardiac surgical training (6-11 years),[4] the effect of changes in trainee enrollment on workforce supply is significantly delayed. Therefore, the ability to predict and respond pre-emptively to changes in workforce demand early is crucial to maintaining a stable cardiac surgery workforce that meets the health care needs of Canadians. Recognizing this, Vanderby et al.[3] developed a system dynamics model to simulate changes in cardiac surgery workforce supply and demand. Based on their projections, cardiac surgery in

Received for publication April 28, 2016. Accepted October 16, 2016.

Corresponding author: Dr Maral Ouzounian, Division of Cardiac Surgery, Peter Munk Cardiac Center, Toronto General Hospital, University of Toronto, 200 Elizabeth St, 4N-464, Toronto, Ontario M5G 2C4. Tel.: +1-416-340-4218; fax: +1-416-340-4580.

E-mail: maral.ouzounian@uhn.ca

See page 5 for disclosure information.

http://dx.doi.org/10.1016/j.cjca.2016.10.012

improvement, and 57% of graduating trainees did not believe that they would be competent to practice independently at the conclusion of their training. Although 51% of participants believe the job market is improving, 94% of senior trainees found it competitive or extremely difficult to secure an attending staff position. Participants highlighted a need for improved career counselling and formal mentorship. Although the job market is perceived to be improving, a mismatch in the cardiac surgery workforce supply and demand remains because current trainees continue to experience difficulty securing employment after the completion of residency training. Trainees have identified improved career counselling and mentorship as potential strategies to aid graduates in securing employment.

répondu. La majorité des participants se sont montrés satisfaits de leur expérience d'apprentissage. Toutefois, 29 % ont déclaré que leur exposition clinique et opératoire devait être améliorée, et 57 % des stagiaires finissants ne croyaient pas qu'ils auraient la compétence pour exercer de manière autonome à la fin de leur formation. Bien que 51 % des participants croient que le marché du travail s'améliore, 94 % des stagiaires *séniors* le trouvent concurrentiel ou extrêmement difficile pour se trouver un poste au sein du personnel traitant. Les participants ont souligné la nécessité d'améliorer l'orientation professionnelle et le mentorat structuré. Bien que l'on s'aperçoive que le marché du travail s'améliore, une inadéquation entre l'offre et la demande de main-d'œuvre en chirurgie cardiaque demeure puisque les stagiaires actuels continuent d'avoir des difficultés pour se trouver un emploi après avoir terminé leur résidence. Les stagiaires ont suggéré l'amélioration de l'orientation professionnelle et du mentorat comme stratégies potentielles pour aider les diplômés à trouver un emploi.

Canada is likely to experience a significant human health resource (HHR) shortage as early as 2020 that could near 50% of the cardiac surgical workforce.

Strategic HHR planning has been recognized by the Canadian Medical Association and Health Canada as vital to optimizing health care delivery to Canadians. The Canadian Society of Cardiac Surgeons (CSCS) has committed to undertaking a leadership role in strategic HHR planning for cardiac surgery.[2] This study details the results of the 2015 Canadian cardiac surgery workforce trainee survey to evaluate the workforce-related perceptions and experiences of Canadian cardiac surgery trainees.

Methods

A 38-question survey (Supplemental Appendix S1) was developed and vetted by the CSCS Workforce Committee. The 96 cardiac surgery trainees surveyed were identified through the program directors of the 10 accredited Canadian cardiac surgery training programs. Ethics approval was obtained from the Research Ethics Board of University Health Network.

All trainees enrolled in a Canadian cardiac surgery residency program for the 2015-2016 academic year were invited to participate. Surveys were administered electronically in October 2015. Participation was voluntary and anonymous. Descriptive statistics were used to summarize quantitative data.

Results

Participant demographics

Of the 96 Canadian cardiac surgery trainees invited to participate, 84 completed the survey (88% response rate). The mean age of participants was 30.4 ± 3.7 years. Twenty of 84 (24%) participants were women. The majority of participants were training in the eastern provinces, with 31 of 84 (37%) from the Maritimes/Quebec and 32 of 84 (39%) from Ontario. The mean number of participants per postgraduate year (PGY) was 14 ± 2.3, with an even distribution over the 6 postgraduate years (Supplemental Fig. S1).

Training

Fifty-six of 79 (71%) participants rated the clinical and operative exposure received during training as "excellent" or "adequate"; however 29% of participants rated their experience as "needs improvement" (Fig. 1A). The majority of participants rated their academic and research opportunities as "excellent" (49%) or "adequate" (37%) (Fig. 1B). Eight of 14 (57%) residents completing their final year of training did not feel competent to practice independently at the conclusion of their training.

Educational focus

Participants were divided into junior (PGY 1-3) and senior (PGY 4-6) trainees and asked to rank their main concerns. Both junior and senior trainees ranked "learning how to operate" as their greatest concern, followed by "patient management/clinical knowledge" (Supplemental Table S1). "Securing a fellowship" was also ranked high among senior trainees, whereas junior trainees focused on "academic productivity" and "maintaining work life balance."

Mentorship and career planning

When asked about mentorship and career counselling provided by their training programs, 44 of 79 (56%) participants reported that they had not identified a formal mentor. Trainees identified a cardiac surgeon within their training program (56 of 73 [78%]) and their training program director (46 of 73 [63%]) as the 2 most common sources of mentorship (Fig. 2C). The majority of participants believed that they had not received adequate career counselling from their training program (53 of 79 [67%]).

Workforce issues

When asked about the cardiac surgery job market, 39 of 76 participants (51%) believed it to be improving (Fig. 2A), although the majority believed finding a desirable job to be "difficult" (49 of 76 [65%]) or "extremely difficult" (20 of 76 [26%]) (Fig. 2B). Regardless, most participants (66 of 76 [87%]) did not regret their decision to pursue cardiac surgery as a career.