Career Plans and Perceptions in Readiness to Practice of Graduating General Surgery Residents in Canada

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INTRODUCTION: Overall, 25% of American general surgery residents identified as not feeling confident operating independently at graduation, which may contribute to 70% pursuing further training. This study was undertaken to identify intended career plans of general surgery graduates in Canada on a national level, and perceived strengths and weaknesses of training that would affect transition to early practice.

METHODS: Questionnaires were distributed to graduating general surgery residents at a Canadian national review course in 2012 and 2013. Data were analyzed for overall trends.

RESULTS: Overall, 75% (78/104) of graduating residents responded in 2012 and 53% (50/95) in 2013. Greater than 60% of respondents were entering a fellowship program upon graduation (49/78 in 2012 and 37/50 in 2013); the most common fellowship choices were minimally invasive surgery (24% in 2012 and 39% in 2013) or surgical oncology (16% in 2012). Most residents reported that they were completing subspecialty training to meet career goals (64/85 overall) rather than feeling unprepared for practice (0/85 overall). Most residents planned on practicing in urban centers (54%) and academic hospitals (73%). Residents perceived a need for assistance for laparoscopic adrenalectomy, neck dissection, laparoscopic splenectomy, laparoscopic low anterior resection, groin dissection, and thyroidectomy.

CONCLUSIONS: An overwhelming majority of general surgery graduates plan to pursue fellowship training to meet career goals of working in urban, academic centers, rather than a perceived lack of competence. It is vital to describe operative competency expectations for residents and to promote a variety of practice opportunities following graduation. (J Surg 72:205-211. Crown Copyright © 2014 Published by Elsevier Inc. on behalf of the Association of Program Directors in Surgery. All rights reserved.)

KEY WORDS: general surgery, graduates, residency, competence, career plans, work-hour restrictions

COMPETENCIES: Patient Care, Medical Knowledge, Practice-Based Learning and Improvement

INTRODUCTION

General surgery training programs face the task of preparing graduates for both direct entry into practice and fellowship training for further subspecialization. During residency, trainees are expected to gain exposure and competence in a broad spectrum of clinical situations and operative procedures regardless of career plans. However, few graduates enter directly into practice,[1] which raises questions about why residents are choosing to pursue fellowship training rather than entering directly into practice. In the United States, it has been reported that 70% of general surgery graduates pursue fellowship training.[2] This elongation of training has been attributed to a lack of competence afforded through a 5-year residency program.[2] Importantly, approximately 25% of American trainees felt that they would not be confident operating independently at graduation.[3,4] Program directors have expressed concern that further work-hour restrictions in the United States may

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  1931-7204/$30.00
http://dx.doi.org/10.1016/j.jsurg.2014.10.001

reduce residents' ability to achieve competence within a 5-year residency program, particularly in general surgery.[5] Christmas et al.[6] found that work-hour restrictions significantly decreased the total number of cases performed by final-year surgical residents and concluded that a reduced workweek had the greatest influence on the chief year operative experience. Drake et al.[7] also identified a decrease in operative caseload following the implementation of an 80-hour workweek in the United States in 2003.

A recent member survey by the Canadian Association of General Surgeons identified that practicing surgeons perceived a gradual decline in technical skills among senior residents.[8] The authors suggested that the deterioration in operative competency necessitates further training through fellowships. They attribute the perceived deterioration in skills to an increase in subspecialization, a lack of surgeons with broad-based practices in academic training programs, and an overemphasis on research. However, other authors have suggested that fellowships enable graduates to gain additional operative and clinical experience.[1] Little is known about general surgery graduating residents' perceived competence and their intended career paths in Canada. Demographics and career plans of residents are not available to residency training programs at a national level. In addition, specific procedural competency expectations are not defined by national surgery boards. This study aimed to identify intended career plans of general surgery graduates on a national level, and perceived operative strengths and weaknesses of their training that would affect transition to practice.

METHODS

Questionnaires were designed by a committee of general surgeons at the University of Toronto with an interest and expertise in surgical education. It included questions related to demographics, career plans, and perceived strengths and weaknesses for selected competencies. Competencies of interest for specific procedures were selected based on core competencies defined by the Royal College of Physicians and Surgeons of Canada (RCPSC) and the American Board of Surgery.[9,10] The committee generated a list of potential general surgery procedures for assessing perceived competence. The list was then reduced to include competencies that fit into 1 of 2 categories, which were established by consensus by the committee. The first group included procedures that residents would be expected to have mastered at the end of residency (i.e., sentinel lymph node biopsy), and the second group included those that were more advanced and were anticipated to require further subspecialty training to achieve competence (i.e., laparoscopic adrenalectomy). The specific procedures and groups are shown in Table 1. Questions addressed perceptions that graduating residents held of their performance regarding independent completion of such operations. A pilot study was conducted using the questionnaire among a group of residents at our institution for face and content validity, and it was revised accordingly.

The questionnaires were distributed to graduating general surgery residents at an annual national review course, the Canadian General Surgery Review, initially in 2012 (cohort 1). The review course was selected for distribution of questionnaires as it is widely attended by graduating general surgery residents from across Canada. The course was designed for graduating general surgery residents; however, attendance was not limited to graduates only. As such, attendees who were not currently graduating, had previously graduated, or did not complete residency in Canada were excluded from the analysis. The questionnaire was then revised based on responses from the initial cohort of graduates in 2012 to clarify and facilitate questionnaire completion and reduce reporting bias. The revised questionnaire was distributed to a second cohort of graduates at a subsequent national review course in 2013 (cohort 2). Follow-up emails were sent to cohort 1 following the review course to improve response rates via an online questionnaire. Email responses were collected from April to August 2012. Consent was implied by completion of the questionnaire, as outlined in a cover letter to potential respondents.

The number of graduating general surgery residents in 2012 and 2013 was obtained from the program directors of each of the 16 individual training programs.

Data were analyzed using Microsoft Excel for overall trends in demographics, career plans, and perceptions. The Mann-Whitney *U* test was used to calculate statistical

TABLE 1. General Surgery Procedures Designated by Consensus by Level of Competency Expected at the Time of Graduation

Expected to Master at the End of Residency Training	Anticipated to Require Further Subspecialty Training to Achieve Competence
Open right hemicolectomy	Component separation
Laparoscopic right hemicolectomy	Neck dissection
Cricothyroidotomy	Groin dissection
Thyroidectomy	Laparoscopic adrenalectomy
Open splenectomy	Laparoscopic splenectomy
Sentinel lymph node biopsy	Laparoscopic low anterior resection
Mastectomy	
Open low anterior resection	