

# Attitudes and experiences of residents in pursuit of postgraduate fellowships: A national survey of Canadian trainees

Naji J. Touma, MD, FRCSC; D. Robert Siemens, MD, FRCSC

Department of Urology, Queen's University, Kingston, ON

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## Abstract

**Introduction:** There have been significant pressures on urology training in North America over the last decade due to both the constantly evolving skill set required and the external demands around delivery of urological care, particularly in Canada. We explore the attitudes and experience of Canadian urology residents toward their postgraduate decisions on fellowship opportunities.

**Methods:** The study consisted of a self-report questionnaire of 4 separate cohorts of graduating urology residents from 2008 to 2011. The first cohort graduating in 2008 and 2009 were sent surveys through SurveyMonkey.com after graduation from residency; those graduating in 2010 and 2011 were prospectively invited as a convenience sample attending a Queen's Urology Examination Skills Training Program review course just prior to graduation. The survey included both open- and closed-ended questions, employing a 5-point Likert scale, and explored the attitudes and experience of fellowship choices. Likert scores for each question were reported as means  $\pm$  standard deviation (SD). Descriptive and correlative statistics were used to analyze the responses. In addition, an agreement score was created for those responding with "strongly agree" and "agree" on the Likert scale.

**Results:** A total of 104 surveys were administered, with 84 respondents (80.8% response rate). As a whole, 84.9% of respondents agreed that they pursued fellowships; oncology and minimally invasive urology were the most popular choices throughout the 4 years. Respondents stated that reasons for pursuing a fellowship included: interest in pursuing an academic career (mean  $3.73 \pm 1.1$  (SD); agreement score 61.1%) as well as acquiring marketable skills to obtain an urology position ( $3.59 \pm 1.3$ : 64.4%). Most agreed or strongly agreed (84.9%) that a reason for pursuing a fellowship was an interest in focusing their practice to this sub-specialty area. In comparison, most graduates disagreed that a reason for pursuing a fellowship was that residency did not equip them with the necessary skills to practice urology ( $2.49 \pm 1.2$ : 19%). Most (81.2%) of graduates agreed they knew enough about academic urology to know if it would be a suitable career choice for them versus 54.7% regarding community urology ( $p < 0.0001$ ). Surprisingly,

only 61.7% of residents agreed that they completed a community elective during training, and most felt they would have benefited from additional elective time in the community.

**Conclusions:** Urology residents graduating from Canadian programs pursue postgraduate training to enhance their surgical skill set and to achieve marketability, but also to facilitate a potential academic career. Responses from the trainees suggest that exposure to community practice appears suboptimal and may be an area of focus for programs to aid in career counselling and professional development.

## Introduction

The practice of urology is ever evolving and this is particularly evident by the relatively recent shift in the surgical management of many urological disorders towards more minimally-invasive techniques. As well as navigating these significant changes in terms of knowledge and skills in subspecialty areas, training programs need to further balance time and effort towards the formal education in broader physician roles in practice and in the community, beyond the role of medical expert.<sup>1,2</sup> With the adoption of these roles and competencies by accrediting bodies, their incorporation into postgraduate curricula objectives has added to the complexity of the training and evaluation of urology trainees.<sup>3-6</sup>

Postgraduate education in surgical disciplines, including residency and subsequent fellowship, is further confounded by the changing societal requirements of practitioners and the availability of healthcare resources. Most graduating urology residents in North America will practice in non-academic settings where practice patterns and availability of technology may vary considerably. In Canada, the discrepancy in the number of trained surgeons and the available hospital resources has recently stimulated dialogue around significant unemployed or under-employed specialists. As well, there are concerns about the documented decline in the number of physician-scientists in surgical practice.<sup>7,8</sup> This has stimu-

lated an increasing focus on scientific inquiry and research in medical school and residency training. The efficacy of these initiatives in stimulating younger clinicians to acquire the research skills to access an academic career alone is limited and post-residency fellowships are generally a requirement.

These realities have encouraged Canadian residents to pursue further training through clinical and research fellowships.<sup>9</sup> The underlying reasons for this observation are poorly understood and likely affected by multiple factors, including individual trends in career choice, external drivers such as market forces, as well potentially self-assessed deficiencies in surgical skill attainment. The purpose of this study is to elucidate the attitudes and experiences informing the pursuit of further post-residency training of Canadian urology residents.

## Methods

We included recently graduated or soon to graduate Canadian urology residents for 4 consecutive years between 2008 and 2011. These trainees were surveyed as 2 separate cohorts. The first sample consisted of 2008 and 2009 graduates who were administered a survey online through [surveymonkey.com](http://www.surveymonkey.com) in the fall of 2010. Automatic e-mails were sent, with 1 reminder e-mail sent 2 weeks after the initial email with a link to the survey. The second cohort was a convenience sample of PGY-5 residents in both 2010 and 2011 years at the time of the annual Queen's Urology Examination Skills Training Program (QUEST) in Kingston, Ontario. The questionnaire was administered to willing participants in an auditorium at the beginning of the program before the start of the program in 2010 and 2011. All survey responses were anonymous. The 2 cohorts, around the end of their residency or during their fellowship training, were targeted for the survey. We chose these participants as they would most likely be arranging or completing their fellowship activities. Ethics approval was obtained from the Queen's University institutional review board with assurance of confidentiality provided to all participants.

The questionnaire consisted of 20 open- and close-ended questions exploring residents' plans after completion of residency training (<http://journals.sfu.ca/cuaj/index.php/journal/article/view/2136/1950>). The questionnaire was developed specifically for this survey on fellowship pursuits and resulted from previous experiences with survey construction for similar attitudes for specialty residents.<sup>5,6</sup> A limited number of residents and educators involved in postgraduate programs were asked to assess and modify the survey for clarity.

Descriptive statistics were used to describe demographics and background information of respondents. Responses to the questions using the 5-point Likert scale are described as means  $\pm$  standard deviation (SD). For ease of reporting and to distinguish trends in the intensity of the survey responses,

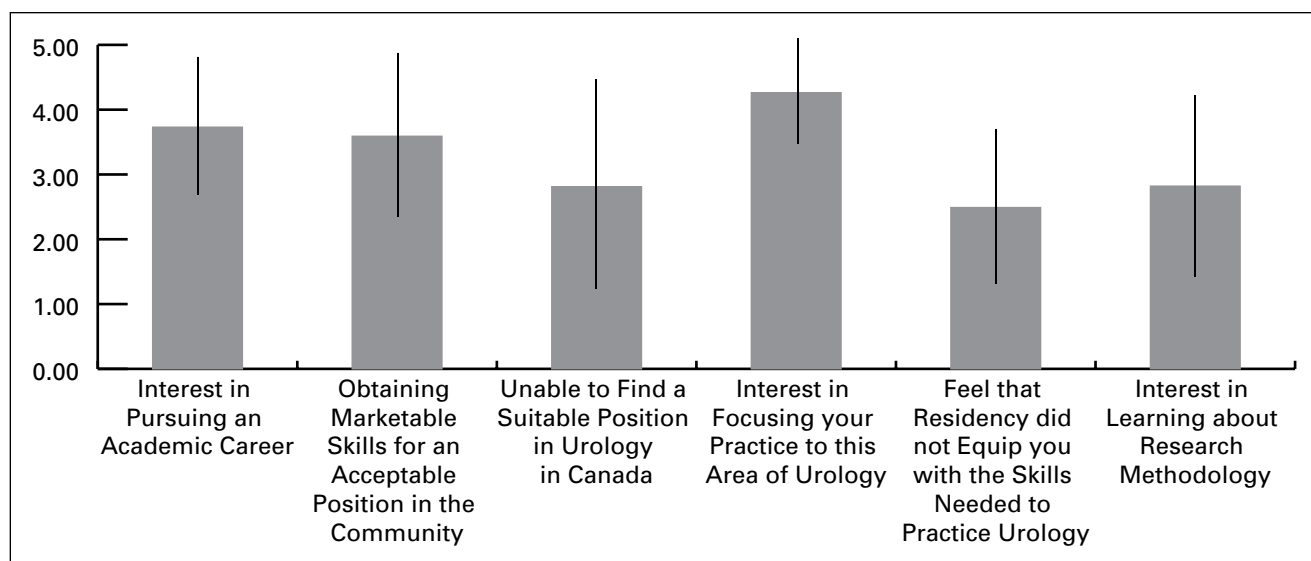
an agreement score combining the responses of 4 (agree) and 5 (strongly agree) was created and reported alongside the mean 5-point Likert score for each question.<sup>10</sup> Similarly, a disagreement score was reported by combining responses of 1 (strongly disagree) and 2 (disagree). The anchoring score of 3 on the Likert score was described as "neutral" on the survey. The chi-square and Fisher exact tests were used to calculate significance between 2 separate frequencies. The Wilcoxon Signed-Ranks test was used to compare Likert scale scores of respondents between the years of the study and between specifically linked questions. Vassar Statistics was used for all statistical analysis.

## Results

A total of 104 surveys were administered with 84 respondents, for an overall response rate of 80.8%. The response rate was lower (55.6%) when the survey was administered through [surveymonkey.com](http://www.surveymonkey.com) for the 2008 and 2009 graduating years compared with 100% for the 2010 and 2011 graduating years when the survey was administered prior to QUEST ( $p < 0.0001$ ). The responses to the survey between the 2 cohorts, which had the survey administered at different points in their urological training and by different methods, were explored to determine any significant differences in their attitudes and experiences in pursuing further training after residency. Interestingly, no substantive or statistically significant trends were observed between the cohorts and over the years of graduating residents (data not shown). The only difference was the response rate. Given the consistency in the survey responses, it was decided post-hoc to combine the data from the 2 cohorts rather than describe the results separately.

The overwhelming majority of graduating residents from 2008 to 2011 pursued a fellowship, with 53.5% pursuing a clinical fellowship with a research component, 29.1% a clinical fellowship, and 2.3% a purely research-oriented fellowship. Of the remaining graduates, 12.8% started a urological practice in Canada, and 2.3% pursuing a locum right after residency. Of those pursuing a fellowship between 2008 and 2011, oncology (35.2%) and minimally invasive surgery or endourology (33.8%) were the most frequent subspecialties chosen. The breakdown for the remaining subspecialties was 14.1% for reconstruction or female urology, 8.5% for pediatric urology, 5.6% for andrology/infertility, and 2.8% for transplantation. The mean and median number of papers or abstracts co-authored during residency of this group was 9.9 and 7, respectively.

The reasons for pursuing a fellowship were probed with plausible, closed-ended questions and candidates rated their answers with a 5 point Likert scale (Fig. 1). An interest in having a focused practice in urology was the most commonly cited justification, with 84.9% agreeing with this statement and a mean score of 4.26 ( $\pm$  0.8 SD) on the 5-point Likert

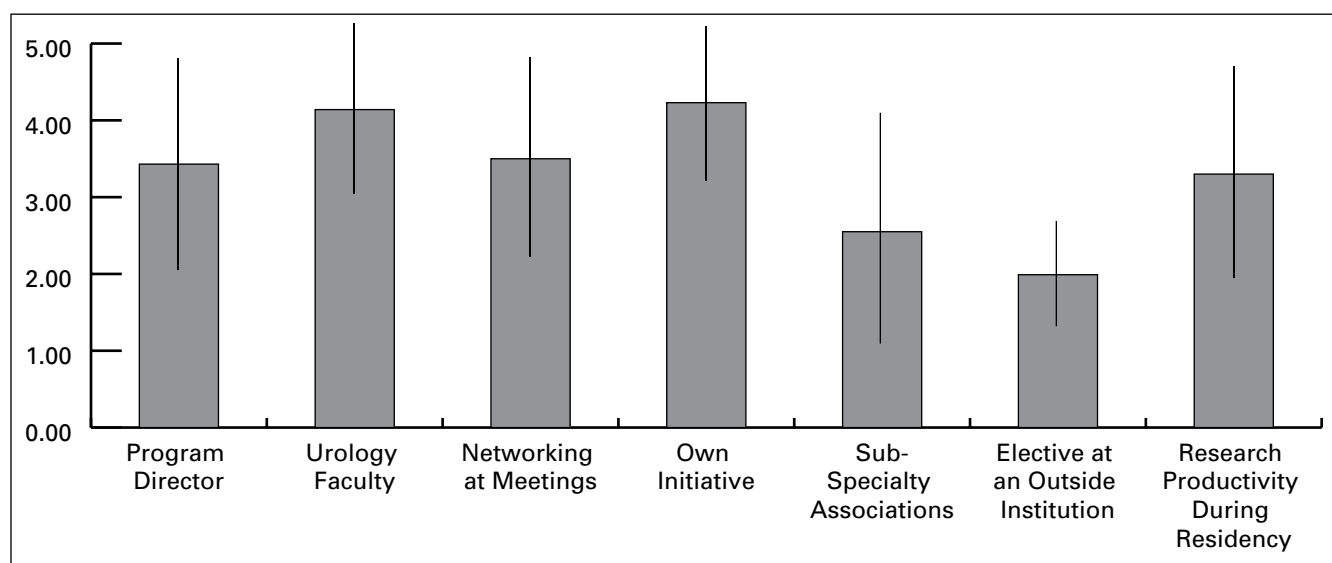


**Fig. 1.** Reasons for pursuing a fellowship. Responses from 2 cohorts of urology trainees representing graduating residents from 2008 to 2011 on stated reasons for pursuing postgraduate training. Responses to questions were combined from all respondents. Bar graph represents mean Likert Score ± standard deviation. Likert scores are grounded by 3 or “neutral” attitude. A response of 5 represents “strongly agree” and 1 represents “strongly disagree.”

scale. Other reasons with over 50% agreement included an interest in pursuing an academic career (61.6%, 3.73 ± 1.1), and obtaining marketable skills to secure employment in urology (64.4%, 3.59 ± 1.3). Conversely, only 19% of respondents agreed or strongly agreed (mean 2.49 ± 1.2) that residency did not equip them with adequate skills to practice urology without further training, with 52.1% disagreeing or strongly disagreeing with this statement.

For all respondents between 2008 and 2011, 61.7% of subjects had completed an elective in community urology during residency. Many respondents agreed (54.2%) that a

community elective was essential to improve their surgical skills, with a mean score of 3.48 (± 1.1). In addition, there appeared to be strong consensus (74.0% strongly agreed or agreed) that these residents would have benefited from additional time in a community setting (mean 4.00 ± 1.0). Most residents (81.2%: 4.04 ± 1.0) agreed that by the end of residency, they knew enough about academic practice to know if it would be a suitable career choice. This is in contrast to a similar question concerning the understanding of a non-academic, community practice, with only 54.7% agreement (mean 3.43 ± 1.2,  $p < 0.0001$ ).



**Fig. 2.** Helpful resources for finding a fellowship. Responses from 2 cohorts of urology trainees representing graduating residents from 2008 to 2011 on the resources used to aid in finding fellowship positions. Responses to questions were combined from all respondents. Bar graph represents mean Likert Score ± standard deviation. Likert scores are grounded by 3 or “neutral” attitude. A response of 5 represents “strongly agree” and 1 represents “strongly disagree.”

With respect to the process of pursuing a fellowship, the vast majority made their decision in PGY-4 (41.3%) and PGY-3 (37.3%), with only 10.7% finalizing their decision in PGY-5. Interestingly, 10.6% of respondents made their decision of type of fellowship very early in training (<PGY-3). Subjects were then asked about the resources they found helpful to secure a fellowship (Fig. 2). There was the greatest agreement that finding a fellowship was based on the resident's own initiative (over 75% agreement, mean score  $4.23 \pm 1.0$ ), followed by faculty mentors and program directors. Of the other potential resources queried, few stated that they were specifically helpful; these included electives at other institutions ( $1.99 \pm 1.2$ ), and subspecialty associations ( $2.55 \pm 1.5$ ).

## Discussion

In this cohort study, the overwhelming majority of graduating Canadian urology residents pursued additional training, with 84.9% opting for fellowships. These results are consistent with other studies suggesting that many surgical subspecialty programs, including urology,<sup>9</sup> have seen a similar trend towards increased fellowship training over time. The motivations behind this growing trend are not well elucidated in the literature, and are likely multi-factorial. Surgical specialties, and the requisite specialized training of its residents, are constantly evolving. This is well exemplified in urology given the significant shifts in the practice of many oncological and benign disorders, as well as the ever-growing incorporation of technology. Furthermore, there has been widespread discussion and distress concerning the perceived lack of employment opportunities for Canadian specialists given resource constraints, particularly for surgical specialties.<sup>11</sup> Experientially, there has been some concern that this growing trend for pursuing fellowship opportunities has been a simple reflection that there are few full-time positions at either academic or non-academic centres. Arranging a fellowship is then seen as a natural next step to engage in some post-residency employment and continue to make oneself marketable through the acquisition of enhanced or subspecialized skills.

In this survey, we explored the attitudes and experiences of contemporary residents between 2008 and 2011 in their pursuit of fellowship training after urology residency in Canada. Our results would suggest that the decisions of residents are complex and less suggestive that the pursuit of postgraduate urology training is now simply a ubiquitous, reflexive surety based on the manpower and resource conflicts in our healthcare system. Very few respondents agreed that their reason for arranging fellowship training was due to a lack of full-time staff opportunities in Canada. There was significantly more agreement that their reasons to pursue a fellowship were to be able to focus their practice

to a specific area of urology. Furthermore, there was agreement throughout all 4 years of graduates that a reason for pursuing fellowship positions was driven, at least in part, by a desire to attain a position as an academic urologist, with 61.6% either agreeing or strongly agreeing. From this self-report survey, there was indeed a fair interest and exposure to academic pursuits of the respondents exemplified by the notable average number of manuscripts authored or co-authored during their training.

These interpretations need to be taken into context with several other observations from this survey. There was a significant degree of agreement from the respondents that their pursuit of fellowship positions was influenced by the desire to obtain marketable skills to ensure adequate employment in a community setting. The degree of these responses to this specific question mirrored those on the desire to obtain an academic position. Any explanation of this apparent dichotomy is not possible from these survey results. The Likert score based questions were, by design, non-ipsative. In other words, the subjects were free to choose and respond to the individual questions without making a preference or limiting opinions on subsequent queries. As well, nearly a third of respondents self-identified their desired or actual fellowship experiences as a clinical endeavour, specifically excluding a research component in their answer. This observation is consistent with the concept of improving or enhancing clinical or technical skills to ensure individual marketability. Interestingly, most respondents rejected the assertion that the pursuit of a fellowship was due to a lack of confidence in their residency training. However, over half of the residents or recent graduates sampled in this survey agreed that a reason for completing a fellowship was to make themselves marketable for subsequent job opportunities. This represents a shift in the training paradigm in Canada over the last decade and is a potentially important message for program director and educators.

It is not surprising that a substantial proportion of Canadian residents are interested in positioning themselves to enter an academic practice, despite the reality that most of them enter community practices. It is likely that training programs are increasingly selective of academically curious candidates. With the rise in interest in urology as a specialty, incoming residents are increasingly highly achieving students among their medical school peers.<sup>12</sup> It is no longer uncommon for incoming residents to have co-authored or presented basic science or clinical research at national and international meetings during medical school training. The factors and experiences that drive the decisions of trainees to obtain advanced education after residency are undoubtedly intangible and often complex. It is not surprising that residents develop an affinity to academia due to the years of training under the mentorship of academic practitioners engaged in dynamic research and educational activities.<sup>13,14</sup> The

increasing recognition and evaluation of the scholar role in contemporary residency education, as well as more access to mentors and role models in academic medicine, would intuitively suggest these particular responses are indicative of the realities of contemporary training.<sup>15,16</sup> Indeed, 38.3% of residents indicated that they did not complete any electives in a community setting during their training, and 74% agreed they would have benefited from additional time in that setting. It would seem worthwhile for clinical and career development to renew our focus on ensuring that future Canadian residents obtain adequate exposure to non-academic practice in urology, including community-based role models and mentors. Furthermore, the self-reported assertions that many residents acquired fellowship opportunities on their own initiative, with less evidence of formal assistance from program or specialty organizations, may also represent an important message for program directors and educators.

Our study has several limitations. First, the results are derived from a self-report survey on the experiences and attitudes towards the pursuit of postgraduate fellowships after urology residency and any independent verification of data was not possible. Second, the survey methodology varied between the 4 graduating years and subsequent response rates varied, potentially leading to some selection bias between cohorts. Third, the survey itself was created specifically for this cohort of trainees in Canada and has not been independently validated. Finally, the survey relied mostly on closed-ended, Likert score-based questions with inherent limitations in interpretation and analysis in describing attitudes in the educational literature. However, the high overall response rates and the consistency of the responses over the 4 years would suggest some degree of assurance of the validity of the observations from the survey.

## Conclusions

Based on this self-report survey, the vast majority of graduates of Canadian urology programs go on to fellowship positions. The reasons for this pursuit are multiple, including a desire to have a focused, less generalized practice, as well as to ensure a degree of marketability to attain their career objectives. Further inquiry into the role of postgraduate fellowships in the context of both clinical skills acquisition and career development is required, especially in relation to

the ongoing human resource complexities in a constrained healthcare system.

**Competing interests:** The authors declare no competing financial or personal interests. Dr. Siemens is Editor-in-chief of CUAJ.

This paper has been peer-reviewed.

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**Correspondence:** Dr. Naji Touma, Department of Urology, Queen's University, 76 Stuart St., Kingston, ON K7L 2V7; [touman@kgk.kari.net](mailto:touman@kgk.kari.net)