

# A survey of Canadian general surgery residents' interest in international surgery

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**Objective:** This survey of Canadian general surgery residents was designed to determine their interest level, past experiences and awareness of opportunities in the field of international surgery. **Methods:** A web-based national survey in both French and English was sent to all Canadian general surgery residents. This survey comprised 24 questions regarding demographics, education, previous international experience, interest level and perceived opportunities in international surgery. **Results:** A 27% response rate revealed a high level of interest in international surgery among Canadian general surgery residents but a low level of awareness of the opportunities and relevant organizations. **Conclusion:** Further initiatives are needed to increase international surgery awareness and opportunities among general surgery residents.

**Objectif :** Ce sondage réalisé auprès de résidents en chirurgie générale du Canada visait à connaître leur degré d'intérêt, leurs expériences et leur connaissance des possibilités en chirurgie à l'étranger. **Méthodes :** On a envoyé un questionnaire national web, en français et en anglais, à tous les résidents canadiens en chirurgie générale. Le questionnaire comportait 24 questions portant sur les caractéristiques démographiques, les études, l'expérience antérieure à l'étranger, le degré d'intérêt et les possibilités perçues en chirurgie à l'étranger. **Résultats :** Le taux de réponse de 27 % a révélé un intérêt important à l'égard de la chirurgie à l'étranger chez les résidents canadiens en chirurgie générale, mais une faible connaissance des possibilités et des organisations pertinentes. **Conclusion :** D'autres initiatives s'imposent pour faire mieux connaître aux résidents en chirurgie générale la situation de la chirurgie à l'étranger et les possibilités qu'elle offre.

Canada has been involved in international surgery since the early 20th century and has produced such renowned surgeons as Dr. Norman Bethune and Dr. Lucille Teasdale. International surgery has been defined as follows:

a humanitarian branch of medicine concerned with the treatment of bodily injuries or disorders by incision or manipulations that includes cooperation and understanding between nations involving education, research, development and advocacy.<sup>1</sup>

Acting on a report by Dr. Bob Taylor in 1998, the Canadian Association

of General Surgeons (CAGS) created the Liaison Committee for the Advancement of Surgical Services in Developing Regions. In 2005, the name of this committee was changed to the Committee for International Surgery. Its mandate is to raise the profile of surgical needs in developing countries among Canadian surgeons and residents and to provide a process for establishing links between interested members and credible organizations working to improve the provision of surgical care in these countries.

Canada is committed to the United Nations' millennium health-based tar-

gets; it is unlikely that these will be met by 2015, the target year. Surgery is one aspect of international health, and for Canada to be a leader in the development of international surgery, wide support from the surgical community is needed. This requires understanding and awareness of the issues unique to international surgery.<sup>2,3</sup> Surgical residents are at an early stage in their careers, and this is an opportune time to increase awareness and interest in adding international surgery to their career goals.

A recent publication reports that US medical students have high levels of interest in international medicine.<sup>4</sup>

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At least 20% of students graduating from US medical schools in 2003 had completed international electives during their training, compared with 6% of those graduating in 1984. International electives provide valuable educational opportunities for teaching residents “cost-conscious practice and back-to-basics diagnosis.” This underscores the need to provide practical and financial assistance to residents to facilitate international electives.

Currently, the Royal College of Physicians and Surgeons of Canada allows up to 3 months of overseas electives during residency training.<sup>5</sup> Funding for resident international electives is available at the University of Toronto (U of T) through the Medical Alumni Association Evans/Rockefeller International Health Fund,<sup>6</sup> but we are not aware of similar opportunities existing at other Canadian medical universities.

This survey was designed to determine the interest level of Canadian general surgery residents, their past experiences and their perceived opportunities in international surgery.

**Methods**

A web-based survey with 24 questions was created in both French and English. The categories included demographics, education, previous international experience, interest level and perceived opportunities (Box 1).

The CAGS executive director sent an email letter explaining the purpose of the survey, along with a web link, to 378 general surgery residents within Canada who were registered with CAGS. At the same time, a letter was sent to all general surgery program directors in Canada, explaining the purpose of this survey and asking them to encourage resident participation. Because most general surgery residents in Quebec are not registered with CAGS, a copy of the letters in French was also sent to secretaries of the Quebec residency programs requesting that they distribute them to their residents. A reminder email was

sent out 3 weeks after the initial email.

Completion of the survey was voluntary, and respondents’ anonymity was maintained. This project received ethics approval from the University of Alberta Health Research Ethics Board.

Results were compiled and analyzed by the web-based program Survey Monkey.<sup>7</sup> A sensitivity analysis was performed to assess the mini-

mum proportion of general surgery residents interested in international surgery. This was done assuming that all residents who did not respond to the survey were not interested in international surgery. The minimum proportion of residents interested would be the number who claimed interest in the survey divided by the total number of residents surveyed.

**Box 1. Web-based national survey of Canadian general surgery residents regarding international surgery (Also available in French)**

Demographics
1. Age
2. Gender
3. Marital status
4. Are you a Canadian citizen?
5. How many languages do you have a working knowledge in?
Education
6. PGY (year of residency training)
7. Location of residency training
8. Location of medical school studies
9. Previous degrees obtained
10. Do you plan to complete fellowship training after residency?
11. If so, in what specialty?
Previous International Experience
12. Have you ever travelled outside of North America?
13. If you have travelled outside of North America, please list the number of times you have done so
14. During medical school or residency, have you completed any electives outside of North America?
Previous International Experience 2 (If answered “Yes” to Q #14)
15. Did you complete an elective as a medical student?
16. Did you complete an elective as a resident?
17. Number of electives completed outside of North America
18. Where did you go for your electives?
19. Did you get assistance from your medical school to arrange these electives?
20. Did you get financial assistance for any of these electives?
21. What difficulties, if any, did you encounter while attempting to arrange these electives?
22. Would you do another international elective after your previous experience(s)?
International Opportunities
23. Are you interested in doing an international elective during the remainder of your training?
24. Please indicate the relative importance of the following factors as impediments to your own involvement in international electives.
<input type="checkbox"/> Cost
<input type="checkbox"/> Family/other commitments
<input type="checkbox"/> Lack of opportunity/information
<input type="checkbox"/> Fear of harm or danger to self
<input type="checkbox"/> Lack of elective time available
25. Are you interested in incorporating international surgery into your future career goals?
26. What aspects of international surgery are you interested in? (Click all that apply)
<input type="checkbox"/> Travel <input type="checkbox"/> Teaching <input type="checkbox"/> Learning <input type="checkbox"/> Operating <input type="checkbox"/> None <input type="checkbox"/> Other
Canadian Association of General Surgeons (CAGS)
27. Prior to this survey, were you aware that CAGS has an International Surgery committee?
28. Have you ever heard of the Canadian Network for International Surgery (CNIS)?
29. What information and resources would you like the International Committee to make available to residents?

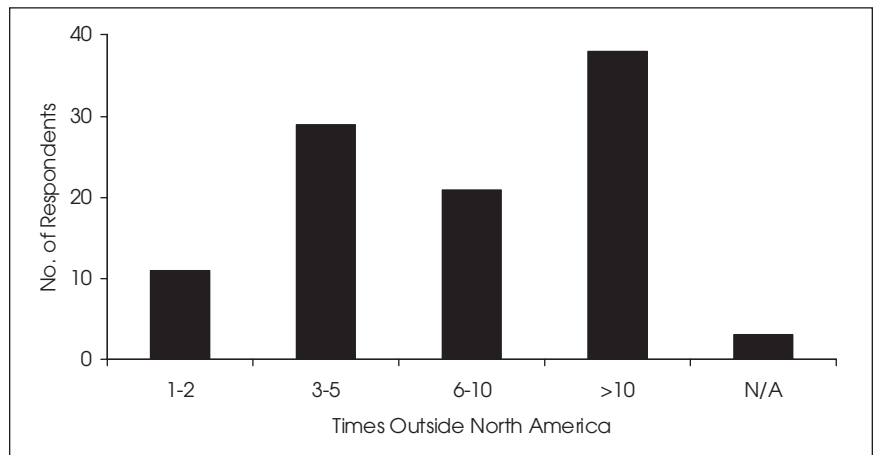
In 2003, the U of T Department of Surgery carried out a hitherto unpublished survey regarding international surgery experience among active staff members of the department. The survey was voluntary, and anonymity was maintained. The questions investigated past international experience, interest level, the impact international work had on respondents' current practice and their opinions about residents doing international electives. We also present the results from that survey and use them for comparison with the resident survey data.

**Results**

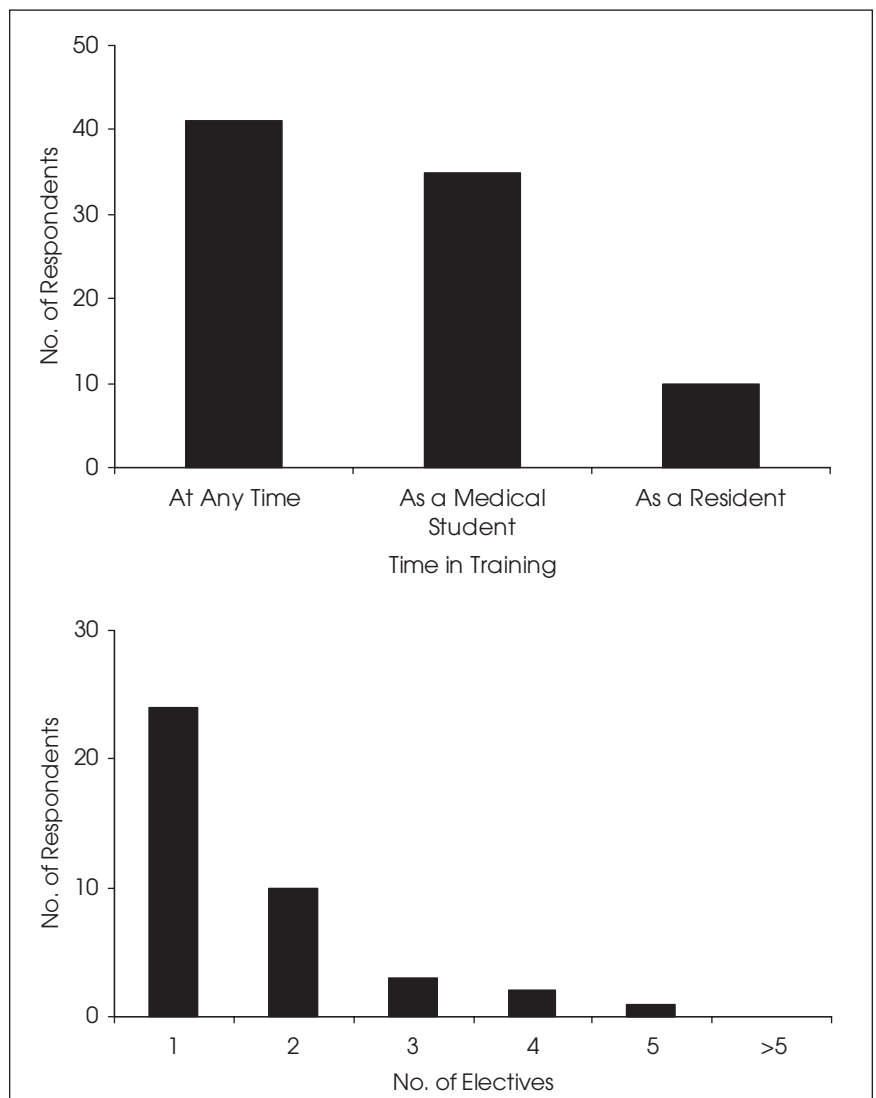
The survey was sent to 378 Canadian general surgery residents, of whom 103 completed the survey (response rate = 27%).

Most respondents were between 26 and 35 years of age. Two-thirds were male and one-third female, with 55% married and 45% single. Of the respondents, 9 stated they were not Canadian citizens. The majority (52%) had a working knowledge in 2 languages, and 22% had a working knowledge in 3 or more languages. All post graduate years (PGYs) were represented, and all medical schools except for 1 French-speaking school were represented. The University of Alberta had the highest response rate. The majority of respondents (75%) plan to complete fellowship training after residency.

Of the 103 responders, 99 had previously travelled outside North America, and most had done so more than twice (Fig. 1). Forty-one residents had completed a total of 66 international electives during the course of their medical training, and most of these electives were completed during medical school (Fig. 2). Several respondents completed more than 1 elective as either a student or a resident. International electives were undertaken in all areas of the world (Fig. 3). Of those who completed international electives, 32% received organizational assistance and only 27%



**FIG. 1.** Number of times Canadian general surgery residents have travelled outside of North America.

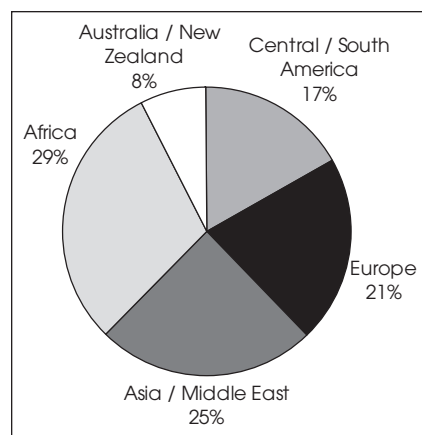


**FIG. 2.** International electives completed by Canadian general surgery residents. Forty-one residents completed a total of 66 international electives during the course of their medical training. Several of these respondents completed more than 1 elective as either a student or a resident.

received financial assistance. Difficulties encountered while arranging these electives are listed in Box 2. Almost all residents who completed international electives (98%) stated they would do another.

Of the respondents, 63% stated that they were interested in doing an international elective during the remainder of their training. Among the potential impediments to involvement in international electives, 67% of residents listed "cost" as either important or very important, 57% listed "lack of opportunity or information," 56% listed "lack of elective time," and 54% listed "family or other commitments" as important or very important. "Fear of danger or harm to self" was less frequently listed (29%) as important or very important.

The majority (89%) of respondents stated that they were interested in incorporating international surgery into their future career goals. A sensitivity analysis, performed assuming that all nonresponding residents were not interested, demonstrates that 24% (out of 378 surveyed residents, 92 respondents claimed interest) of all Canadian general surgery residents are interested in incorporating international surgery into their careers. When asked about different aspects of international surgery, 88% were interested in operating, 78% in travel, 68% in learning and 65% in teaching.



**FIG. 3. Locations of international electives completed by Canadian general surgery residents, during either medical school or residency.**

Among the respondents, 30% were aware that CAGS has a Committee for International Surgery, and 31% had previously heard of the Canadian Network for International Surgery (CNIS). Box 2 lists the information and resources residents would like the Committee for International Surgery to make available.

In the 2002–2003 survey by the U of T Department of Surgery, 10% of respondents were involved in work in developing countries, 33% had previous international experience, and 46% stated that they would like to become involved in clinical work, teaching or research in developing countries. Of the 70 staff members who had international experience, 83% felt this experience benefited them professionally, and 100% felt it benefited them at a personal level. Of the total respondents, 75% believed medical students and residents should be encouraged to work in developing countries, and 71% believed there should be more funding for medical students and residents to work overseas.

**Discussion**

A significant number of electives have been completed in all areas of the world by general surgery residents during their training. Most overseas electives were completed during medical school, which suggests that it may be more difficult to arrange international electives as a resident, despite the Royal College's allowance of up to 3 months of overseas electives during training.<sup>5</sup> Possi-

ble reasons for this include lack of elective time, lack of recognition of international electives by the home university, financial cost and lack of knowledge and opportunities. Very little funding for international electives is currently available at Canadian medical universities, and few respondents received organizational or financial assistance for their electives. Cost, followed by lack of opportunities and information, appeared to be the biggest impediments for residents wanting to complete international electives. It is not clear whether residents understand that in general they will continue to receive their salaries during overseas rotations and that the cost of living is substantially lower in most developing countries than in Canada. This already goes a long way toward offsetting the cost of airfare, accommodation and vaccinations. The real cost of an overseas elective is a small proportion of the debt incurred by many residents by the end of their training. These are issues that should be addressed at the national level by the CAGS Committee for International Surgery, as well as at the local institutional level.

Despite these difficulties, 98% of residents who have completed an international elective stated that they would do another, given their previous experience. Further, of all respondents, 63% were interested in completing an international elective before the end of their residency training. This emphasizes the valuable nature of these experiences and the demand for such opportunities.

<b>Box 2. Difficulties encountered while arranging international electives, and information and resources residents would like the Committee for International Surgery to make available</b>	
Difficulties encountered	Desired information and resources
1. Knowing where to start	1. Conferences and information sessions
2. Obtaining contact information	2. Lists of locations and contacts
3. Financial costs	3. Funding
4. Documentation	4. Information on arranging electives
5. Disorganization on the receiving end	
6. Bureaucratic difficulties locally	

A large proportion of respondents (89%) were interested in incorporating international surgery into their future career plans, and operating was the most commonly listed aspect of interest. There are also many other ways in which surgeons can get involved in international surgery. These include raising funds and supplies from within Canada, education and awareness campaigns within Canada and educational projects overseas. Residents naturally want to operate as much as possible, but within residency programs, mentoring and education regarding the nature of international surgery and the needs in various settings would be a valuable way to increase awareness of these issues. Establishing twin universities overseas and creating resident exchange programs could be another way to increase education and awareness among all involved parties.

Few residents knew of the existence of the CAGS Committee for International Surgery or the CNIS, which indicates the need for further education and awareness campaigns. It is hoped that, as a result of local and national campaigns, residents will become much more aware of these resources in the years to come.

A limitation of this survey of Canadian general surgery residents is the relatively low response rate of 27%. There was likely a response bias, with residents interested in international surgery being more likely to complete the questionnaire. Despite this, a sensitivity analysis, performed assuming that all nonresponding residents were not interested, demonstrates that 24% of all Canadian general surgery residents are interested in incorporating international surgery into their careers. This underscores the need for better organizational and financial assistance in attaining this goal. This assistance could be achieved at several levels,

including residency training programs, local universities, government support and training and national programs.

This survey reflected the overall demographics of Canadian general surgery residents, with Quebec residents being underrepresented. Whether this survey can be generalized to Quebec residents is unclear. Distribution of the survey to these residents was difficult, and a further attempt to solicit their input could be undertaken in the future.

A recent US publication reported that 20% of US medical students complete an international elective during their training,<sup>4</sup> and similar levels of interest were reported in this survey. Further, results from the U of T Department of Surgery survey reflect and support the findings from the resident survey and underscore the need to make financing and opportunities available to residents.

This survey reveals a significant level of interest in international surgery among Canadian general surgery residents. However, awareness of opportunities and organizations is low. Further initiatives are needed to increase awareness of international surgery and available opportunities among general surgery residents. A recent initiative by the CAGS Committee for International Surgery includes the designation of regional staff representatives who can assist residents with contacts and information regarding international electives.<sup>8</sup> A check list for residents going on overseas medical missions<sup>9</sup> has also been drafted to assist residents with the necessary steps and paperwork before they undertake an overseas elective. The next challenge will be to make more grants and scholarships available for residents wanting to complete international electives. It would also be interesting to incorporate education on interna-

tional surgery into residency programs, either informally or via formal workshops or courses. Through these initiatives, Canada will have the opportunity to remain a world leader in the development of international surgery and to honour its commitment to the United Nations' millennium health-based targets.

**Competing interests:** None declared.

**Contributors:** Drs. Barton and Beveridge designed the study. Drs. Barton and Williams acquired the data; the latter analyzed it. Drs. Barton and Beveridge wrote the article; Drs. Williams and Beveridge reviewed it. All authors gave final approval for publication.

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