Surgical residents’ opinions on international surgical residency in Flanders, Belgium

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Background: International electives benefit training of medical residents due to exposure to an increased scope of pathologies, improved physical examination skills, communication across cultural boundaries and more efficient resource utilization. Currently there is no mechanism for Belgian surgical residents to participate in international training opportunities and little research has addressed the international mobility of Belgian residents. The goal of this study was to examine the attitudes of Belgian residents towards international training among surgical residents.

Methods: An anonymous, structured electronic questionnaire was sent to a cohort of Belgian residents, including surgical residents, by e-mail and social media.

Results: In total, 342 respondents filled out the questionnaire out of a total of 5906 Belgian residents. The results showed that 334 of the residents came from Flanders (10.8%) and 8 came from French-speaking Brussels and Wallonia (0.28%). Surgical specialties represented 46% of respondents and included surgical, obstetric and anaesthesiology residents. The majority (98%) were interested in an international rotation, both in low- and middle-income countries (LMICs) and in high-income countries. A total of 84% were willing to conduct an international rotation during holidays and 91% would participate even when their international stay would not be recognised as part of their residency training. A minority (38%) had undertaken an international rotation in the past and, of those, 5% went to an LMIC.

Conclusion: The majority of surgical residents consider an international rotation as educationally beneficial, even though they are rarely undertaken. Our survey shows that in order to facilitate foreign rotations, Flemish universities and governmental institutions will have to alleviate the regulatory, logistical and financial constraints.

Keywords: education, global health, global surgery, international surgical electives.

Introduction

For a long time, surgical, obstetric and anaesthesiology care has not been included in the global health discourse. Only recently, a surgical equivalent of global health was launched by the Lancet Commission on Global Surgery. 1

Global surgery is defined as an area of study, research, practice and advocacy that seeks to improve health outcomes and achieve health equity for all those who require surgical care, with a special emphasis on underserved populations and populations in crisis. 2 Given the significant shortage of surgical care in low- and middle-income countries (LMICs), global surgical electives could contribute to improving the growing demand for surgical care in low-resource settings. Benefits can be shared by healthcare workers in LMICs and by medical residents being offered international training opportunities. A variety of pathologies and a need for advanced clinical and surgical skills make it valuable for surgical residents to participate in global surgical electives. In addition, a heightened awareness of the social determinants of health in resource-limited areas, as well as differences in cultural and health beliefs, can arise in medical professionals. 3

Internationally, surgical, obstetric and anaesthesiology residents have been shown to be keenly interested in international...
Table 1. Resident characteristics (N=158)

| Characteristics                  | n (%) |
|----------------------------------|-------|
| Postgraduate year                |       |
| 1                                | 25 (16)|
| 2                                | 40 (26)|
| 3                                | 28 (17)|
| 4                                | 40 (26)|
| 5                                | 16 (11)|
| >5                               | 7 (4)  |
| University                       |       |
| Katholieke Universiteit Leuven   | 95 (60.9)|
| Universiteit Antwerpen           | 27 (17.3)|
| Universiteit Gent                | 24 (15.4)|
| Vrije Universiteit Brussel       | 10 (6.4)|
| Age (years)                      |       |
| 20–25                            | 36 (23)|
| 26–30                            | 109 (70)|
| 31–35                            | 11 (7) |
| >35                              | 0 (0)  |
| Gender                           |       |
| M                                | 69 (44)|
| F                                | 87 (56)|
| Specialisation                   |       |
| Anaesthesiology                  | 39 (25)|
| General surgery                  | 45 (29)|
| Gynaecology                      | 27 (17)|
| Neurosurgery                     | 1 (0.5)|
| Otorhinolaryngology              | 10 (6) |
| Ophthalmology                    | 2 (2)  |
| Orthopaedic surgery              | 16 (10)|
| Plastic and reconstructive surgery| 4 (3)   |
| Stomatology                      | 1 (0.5)|
| Urology                          | 11 (7) |

Since a standardized system for international rotations has not yet been developed in Belgium, the aim of this survey was to measure the interest of Belgian specialty trainees in participating in international rotations.

**Methods**

**Survey population**

Belgian residents in training, from all medical subspecialties, were invited to participate in the survey. Resident associations from various Belgian universities and subdisciplines distributed the survey to their respective members. The overarching Flemish residents association had by far the most reach with regards to residents’ contact details; but, the French-speaking residents association did not distribute the survey.

In this analysis, we consider the global surgical disciplines, i.e. surgical, obstetric and anaesthesiology.

Table 2. Response rate per surgical discipline

| Surgical discipline          | Responses | Total residents in Flanders | Response rate, % |
|------------------------------|-----------|-----------------------------|------------------|
| Anaesthesiology              | 39        | 304                         | 12.8             |
| General surgery              | 46        | 178                         | 25.8             |
| Gynaecology                  | 27        | 168                         | 16.1             |
| Neurosurgery                 | 1         | 38                          | 2.6              |
| Otorhinolaryngology          | 10        | 69                          | 14.5             |
| Ophthalmology                | 3         | 72                          | 4.2              |
| Orthopaedic surgery          | 16        | 129                         | 12.4             |
| Plastic and reconstructive surgery | 4        | 28                          | 14.2             |
| Stomatology                  | 1         | 39                          | 2.5              |
| Urology                      | 11        | 84                          | 13.1             |

**Survey development**

The questions were developed by the members of the resident association Residents Abroad, in both Dutch and French. Feedback on the questions was provided by fellow residents from all medical subspecialties. Members of the Belgian humanitarian organization Ouaga and the former secretary of the Surgical Centre from the University Hospitals Leuven also reviewed the questions and provided feedback. The survey was subsequently developed on Google Surveys and provided on residentsabroad.org for a duration of 3 months (25 September–31 December 2019). Respondents could fill in the survey only once. After 2 weeks, a reminder was sent by the Flemish resident association. Additionally, the national medical journal De Artsenkrant published an article aimed at inviting residents to participate in the survey. Social media channels (Facebook and Instagram) were also important means of communication for distributing a link to the survey.

Table 3. International experience

| Experience                                      | n (%) |
|------------------------------------------------|-------|
| International internship during medical degree  | 107 (69) |
| Yes                                            |       |
| HIC                                            | 56 (51) |
| LMIC                                           | 51 (49) |
| No                                             | 49 (31) |
| International residency*                        | 60 (39) |
| Yes                                            |       |
| HIC                                            | 57 (95) |
| LMIC                                           | 3 (5)  |
| No                                             | 96 (61) |

*Planned or already done.
General information about the training of the resident was collected in the survey, followed by their previous foreign experiences and ending with their interests in future international rotations. Free text space was also provided for respondents to make comments.

**Results**

**Demography**

Respondents from the Dutch-speaking region of Belgium (Flanders; n=334) accounted for 10.4% of all specialty trainees.
How long residents would participate in an unpaid international rotation.

(N=3217). Only 0.26% of residents from the French-speaking parts of Belgium (Brussels and Wallonia; n=8) responded to the survey. The total number of training residents was based on the latest figures from the annual statistics of the Federal Public Health Service (2019). As this study focused on global surgery, only surgical disciplines were included in the analysis, namely 161 residents in surgical, obstetric and anaesthesiology subspecialities. Since there were only two French-speaking surgeons in training, the French-speaking community was underrepresented and thus they were excluded from the analysis. Three respondents had taken up their specialty training in Germany and were excluded from the analysis, leading to a total of 156 residents analysed.

Selected demographic characteristics of survey respondents are listed in Table 1. The majority of respondents were planning careers in general surgery (29%) and anaesthesiology (25%). The third major group was gynaecology and obstetrics (17%). The remaining respondents (29%) were planning on specializing in otolaryngology, orthopaedics, urologic surgery, head and neck surgery and ophthalmology.

The response rate per surgical discipline is listed in Table 2.

**Figure 3.** How long residents would participate in an unpaid international rotation.

The residents’ international experience was surveyed and is summarized in Table 3. Most respondents had previous international experience as a medical intern (69%), with a nearly even distribution between high-income countries (HICs) and low- and middle-income countries (LMICs). During residency, a minority (38%) had already undertaken or had planned a foreign experience, with HICs accounting for 95% and LMICs accounting for 5%.

**Interest and commitment**

The vast majority (98%) of residents indicated they were interested in conducting an international rotation, both in LMICs and in HICs (Figure 1). Of the subset expressing their interest, 84% would be willing to use annual leave days for an international rotation (Figure 2) and 91% would opt to complete such a rotation without acknowledgement by their residency program (Figure 4). Similarly, the majority of the residents (91%) would be interested in undertaking an international rotation even without financial compensation. This breaks down into 31% agreeing to an unpaid rotation for 1 month, 38% for 3 months, 14% for 6 months, 7% for 12 months and 2% for >12 months; 8% would not opt for an international rotation without financial compensation (Figure 3). Finally, 93% of the residents thought that a high-quality foreign rotation should be recognized within their residency program (Figure 5).

**International experience**

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**Motivation and barriers**

Most residents indicated that they are interested in a foreign rotation because of the contribution they can make to knowledge exchange (73.9%) and to gain technical/clinical experience (87.4%). The main barriers experienced by the residents are lack of support from their training centre (65.5%) and a lack of organized opportunities (61.3%).
Discussion

In Western Europe, surgical care is easily accessible thanks to high-quality public healthcare made accessible through social security.\(^6\) In many parts of the world however, there is an unmet need to establish safe, affordable surgical, obstetric and anaesthesiology care.\(^7\) International rotations for residents in training could be an important step towards promoting surgical, obstetric and anaesthesiology care in LMICs. Although not proven by our survey, residents can contribute to capacity building by providing additional skilled manpower\(^8\) and contributing to bilateral knowledge exchange between international partners. Additionally, by creating a training network, doors will opened to future bilateral exchanges. Finally, increased personal involvement with and contributions to humanitarian medicine will likely be boosted after one has taken part in an international residency exchange program. All of these factors will end up improving the quality of care delivered in the long term.

Our survey shows the strong interest of Belgian surgical residents in international rotations, 79% of whom are interested in going to an LMIC (Figure 1), as they consider an international rotation in a low-resource setting an important contribution to the quality of their education. The vast majority would also consider an international rotation during their paid annual leave time, even in the absence of recognition by the Belgian boards of surgery, obstetrics and anaesthesiology as being part of the official residency program.

Our study has several limitations. The high percentage of respondents interested in international rotations may have arisen from participation bias, with interested residents being more keen to participate in the survey. In addition, very few residents from the French-speaking part of Belgium completed the survey. This may be due to the absence of French-speaking residents in the residents’ organization who set up the survey. The vast majority of answers were obtained through survey distribution by Flemish residents organisations. More research should be done in French-speaking Belgium to provide a realistic picture of the international ambitions of French-speaking residents.

International rotations are difficult to organise in the current Belgian training system. A first step towards international rotations in a low-resource setting would be to recognize and finance such rotations. In the current system, only paid rotations are recognized. Many hospitals in low-resource settings cannot guarantee fair financial compensation, making recognition of the rotation as being part of the official training program impossible under current legislation. To allow acknowledgment, either training centres should provide financial compensation for departing residents or legislative changes are necessary to endorse unpaid rotations. Either way, the quality of international rotations cannot be determined solely by the parameter of remuneration, as there are many other parameters in recognizing its quality, such as an electronic logbook that needs to be kept up to date, appraisals from supervisors etc.

Therefore, financial constraints remain the biggest obstacle for conducting rotations in LMICs, despite the obvious need in these countries and the willingness of Belgian residents to participate. The experience gained during the training will enrich the training and the future professional career of the specialist in training. In this way, international rotations, in addition to direct impacts in the LMIC in question, also indirectly benefit Belgian healthcare.

Following many discussions by the authors with political and medical opinion leaders within and outside of the universities, we...
conclude that a publicly funded program financially supporting international rotations is the most viable way forward. With this investment, the Belgian government can contribute to its humanitarian objectives. With regards to the recognition of foreign rotations, the accredited international elective for third- and fourth-year surgical residents program in the USA can serve as a prime example. Through these efforts, Belgium can further its stature as an important player in global surgery. Support is already available from existing assets, such as the Belgian organization Incision, which is the largest global surgery student organization; the Institute of Tropical Medicine; the Flemish universities, with their new masters in Global Health; and Enabel, the Belgian development organization that already has experience in supporting surgical systems.9

Conclusions

Our survey shows a very strong interest of Belgian surgical residents in international rotations and particularly in practicing medicine in a low-resource settings. This means that global surgical electives should be placed on the agenda of university training centres and governmental bodies in Belgium. These exchanges between local and foreign doctors will help to improve the overall quality of medical care and education and promote international networking as well as future bilateral exchanges.

Authors’ contributions: GW and JR conceived the survey and designed the study protocol. GW, JR, CC distributed the survey. GW, JR, CC and PH were responsible for the analysis and interpretation of data. GW drafted the manuscript. JR, CC and PH critically revised the manuscript for intellectual content. All authors read and approved the final manuscript. GW and JR are guarantors of the paper.

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Data availability: Full survey data are available upon request and will be anonymized.

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