

A survey investigating the current situation of the international visiting scholar program at the department of surgery in Korea

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Purpose: The number of international visiting scholars has been on the increase in Korea and we aim to investigate the program's current situation.

Methods: This cross-sectional study is based on an online survey questionnaire responded by international visiting scholars in surgical departments of 8 Korean hospitals between 2014 and 2018 about their experiences and satisfaction with the visiting scholar program.

Results: A total of 1,496 international scholars from 80 countries visited various surgical departments in 8 Korean hospitals between 2014 and 2018. The numbers have been on the increase over the years. Out of 355 visiting scholars in 2018, 71 replied to the online survey, of whom 52 were male and 19 female, and mostly in their 30s and 40s. Information about the program was accessed mostly through friends or colleagues (42.3%) and international conferences (36.6%). The commonest funding source was private (35.2%) and more than half stayed for less than 3 months. The visiting scholar's main roles were mostly observation or participation in surgery and clinical research. All but 1 were satisfied with the program (98.6%) and would recommend it to friends and colleagues, although the language barrier was identified as an inconvenience. Those aged 20–39 years with governmental or institutional funding were associated with stays of more than 1 year.

Conclusion: The number of international visiting scholars at surgical departments in Korean hospitals has been on the increase with high satisfaction levels. Improvements need to be made on funding sources and lengthening visiting period to maximize the benefits of the program.

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INTRODUCTION

The number of international medical visiting scholars to Korea has been on the increase, participating from over 100 countries to expand their practical and research skills. International cooperation with the exchange of innovative medical knowledge is paramount in overcoming human disease and improving quality of life. Global training programs in developed countries are being offered to international visiting scholars from mid- to low-income countries [1,2]. Korea is amongst those offering programs in surgical skills or hospital systems education with its impressive track record of having the highest cancer survival rate amongst the Organisation for Economic Co-operation and Development (OECD) countries and the third-highest number of published original articles about robotic surgery in the world [3,4].

The history of Western medicine in Korea dates back to the first modern-style governmental hospital, the Jejungwon (House of Universal Helpfulness), built by King Gojong of the Joseon Dynasty in 1885 [5] where Horace N. Allen, an American medical missionary was pivotal in its foundation [6]. In the 20th century after the Korean War (1950–1953), the country was one of the poorest in the world with a gross domestic product of 64 US dollar (USD) per capita (33,346 USD in 2018) and in the receiving end of global aid [7]. The Minnesota Project from 1954 to 1961, a medical aid program between the University of Minnesota and Seoul National University College of Medicine in postwar South Korea, is a successful example leading to advancement in modern medicine [8]. This rapid growth in the medical field has culminated in the commanding management of the coronavirus disease 2019 (COVID-19) during the most recent pandemic, where together with the sacrifice of the well-trained health care professionals, has recognized Korea as one of the top health-care systems in the world. Korea is one of the very few countries to have developed from an aid recipient to a donor country; therefore, there are many initiatives in place to share the benefits of the advances in medical technology with other countries [9].

This study aims to investigate the current situation of the international visiting program for surgery in Korea through a survey on international visiting scholars, with the objective of improving the quality of the program in general.

METHODS

This is a cross-section study performed through a survey on international visiting scholars at various departments of surgery in Korea from August 2019 to October 2019. The online questionnaire, linked via e-mail, collected the experiences and opinion from international visiting scholars who attended the program in Korea between 2014 and 2018 from the following

8 hospitals: Asan Medical Center, Korea University Anam Hospital, Kyungpook National University Hospital, Samsung Medical Center, Seoul National University Bundang Hospital, Seoul National University Hospital, Seoul St. Mary's Hospital, and Severance Hospital. The survey of 21 questions included: sex, age, position in their hospital, subspecialty, duration of medical practice, accompanying family in South Korea, visiting institute and division, duration of visit, funding source, main role during visiting period, reason for choosing South Korea, sources of information about South Korea, impression of surgery in South Korea, satisfaction with the visiting program, reason for satisfaction or dissatisfaction, recommendation to others, inconvenience during visiting periods, and any further comments (Supplementary Fig. 1). The information that they provided was kept strictly confidential and no personal identifying information was collected.

This study was approved for ethical exemption by the Institutional Review Board of Seoul National University Hospital (SNUH 2005-096-1123).

Statistical analysis

Statistical analysis was performed using IBM SPSS Statistics for Windows, ver. 22.0 (IBM Corp., New York, NY, USA). We present descriptive statistics as mean \pm standard deviation. Student t-test was used to compare the averages of continuous variables. Pearson chi-square test and Fisher exact test were used for univariate analysis of association between categorical variables. Statistical significance was accepted for P-values of <0.05 .

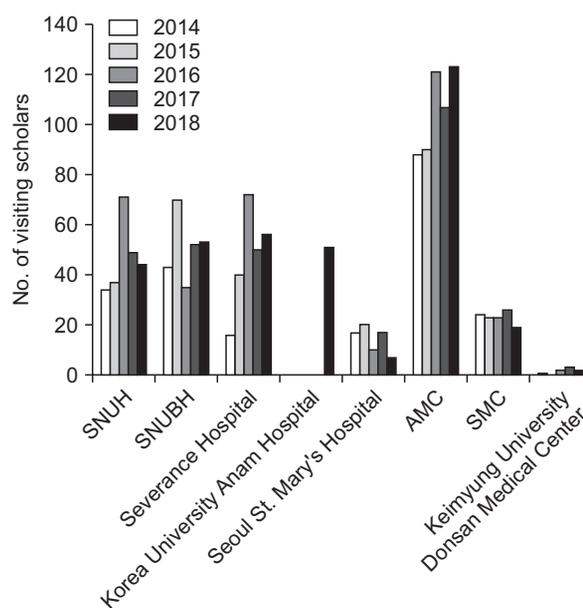


Fig. 1. The number of visiting scholars according to years at each hospital. SNUH, Seoul National University Hospital; SNUBH, Seoul National University Bundang Hospital; AMC, Asan Medical Center; SMC, Samsung Medical Center.

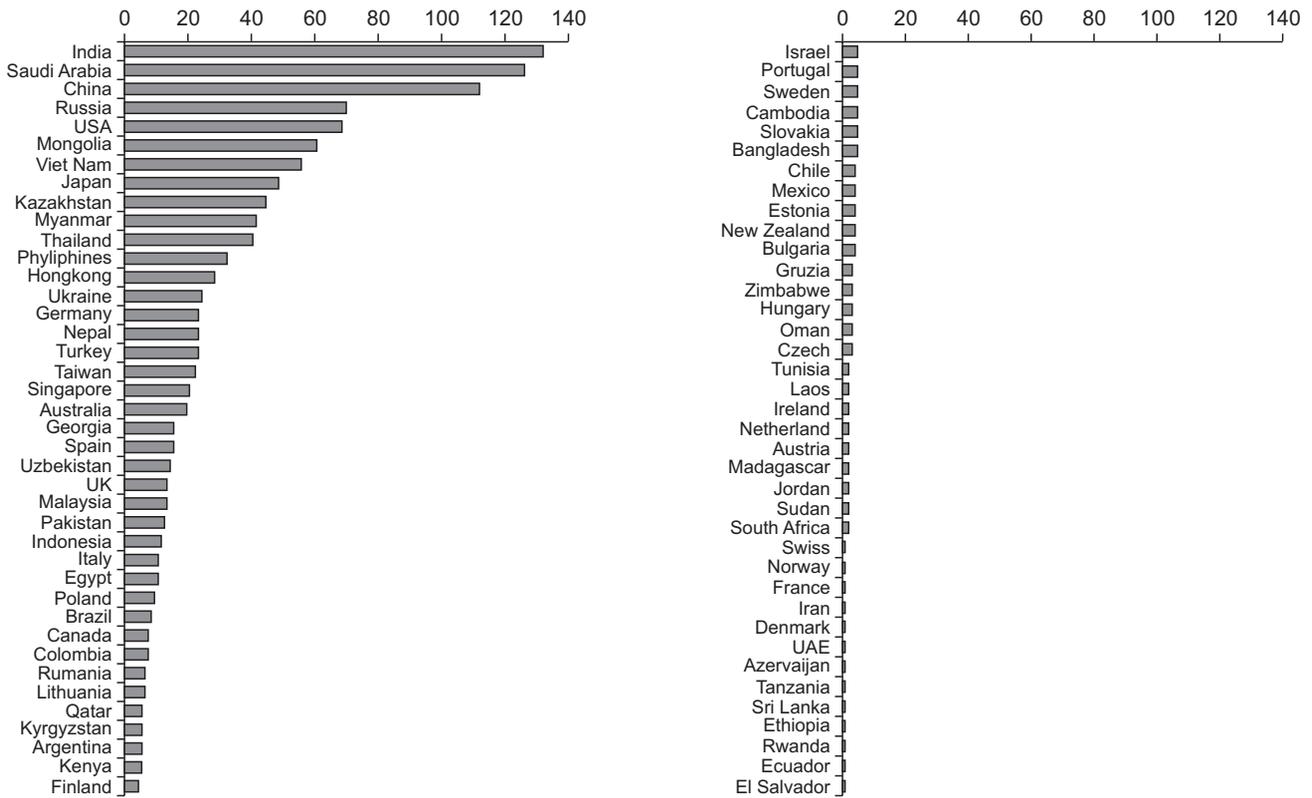


Fig. 2. The nations of visiting scholars.

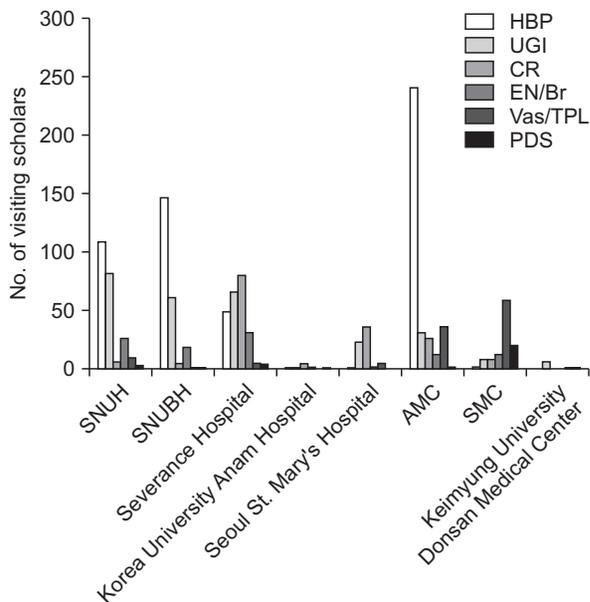


Fig. 3. The number of visiting scholars according to divisions at each hospital. SNUH, Seoul National University Hospital; SNUBH, Seoul National University Bundang Hospital; AMC, Asan Medical Center; SMC, Samsung Medical Center; HBP, hepatobiliary and pancreas; UGI, upper gastrointestinal; CR, colorectal; EN/Br, endocrine & breast; Vas/TPL, vascular & transplantation; PDS, pediatric.



Fig. 4. The duration of visiting period.

RESULTS

In total, 1,496 international visiting scholars had visited 8 hospitals between 2014 and 2018. The number of visitors through the international visiting scholar program steadily increased over the years (Fig. 1) with physicians originating from 80 countries (Fig. 2) into a diverse number of departments within surgery (Fig. 3). The most common duration of visit was 1–4 weeks, and the second was 1–3 months (Fig. 4).

Seventy-one out of 355 international visiting scholars to South Korea completed the online survey in 2018 (response rate, 20.0%). There were 52 male and 19 female participants and were mostly in their 30s and 40s reflecting their duration of medical practice as largely being under 15 years postgraduation (Table 1). The commonest position at their institute of

Table 1. Characteristics of international visiting scholars

| Characteristic | No. (%) |
|-----------------------------------|-----------|
| Sex | |
| Male | 52 (73.2) |
| Female | 19 (26.8) |
| Age (yr) | |
| 20–29 | 3 (4.2) |
| 30–39 | 42 (59.2) |
| 40–49 | 24 (33.8) |
| 50–59 | 1 (1.4) |
| 60–65 | 1 (1.4) |
| Position in their hospital | |
| Professor | 16 (22.5) |
| Staff | 25 (35.2) |
| Private surgeon | 11 (15.5) |
| Fellow | 14 (19.7) |
| Resident | 3 (4.2) |
| Student | 1 (1.4) |
| Others | 1 (1.4) |
| Subspecialty ^{a)} | |
| General | 31 (43.7) |
| Hepatobiliary & pancreas | 19 (26.8) |
| Upper gastrointestinal | 13 (18.3) |
| Lower gastrointestinal | 14 (19.7) |
| Endocrine or breast | 11 (15.5) |
| Vascular | 1 (1.4) |
| Transplantation | 6 (8.5) |
| Pediatric | 4 (5.6) |
| Trauma | 1 (1.4) |
| Hernia | 2 (2.8) |
| Others | 6 (8.5) |
| Duration of medical practice (yr) | |
| 0–4 | 27 (38.0) |
| 5–9 | 16 (22.5) |
| 10–14 | 15 (21.1) |
| 15–19 | 9 (12.7) |
| 20–24 | 2 (2.8) |
| 25–29 | 1 (1.4) |
| Others | 1 (1.4) |

^{a)}Multiple responses possible.

origin was that of professors or staff members from various subspecialties. Friends or colleagues were the most frequent source for gathering information about the Korean program followed by international conferences. The reasons for choosing South Korea included innovative techniques of minimally invasive surgery using laparoscopic or robotic surgery and its use in transplantation; high-level clinical research; well-structured health-care system; high patient volume; generous and great hospitality, etc. The commonest form of funding was private followed by institutional funding. Three months or less was the most frequent duration of visit in the responders and most of the scholars visited for 12 months or less without their family. Some of the international visiting scholars visited

Table 2. Experiences of visiting period

| Variable | No. (%) |
|--|-----------|
| Sources to get information about Korea | |
| International conference | 26 (36.6) |
| SCI(E) journal | 3 (4.2) |
| Internet or social media | 3 (4.2) |
| Exchanging program | 8 (11.3) |
| Friends or colleagues | 30 (42.3) |
| Others | 1 (1.4) |
| Funding source | |
| Own institute | 16 (22.5) |
| Own government | 11 (15.5) |
| Korean institute | 15 (21.1) |
| Korean government | 1 (1.4) |
| Private resource | 25 (35.2) |
| Others | 3 (4.2) |
| Duration of visiting (mo) | |
| ≤3 | 41 (57.7) |
| >3, ≤6 | 8 (11.3) |
| >6, ≤12 | 12 (16.9) |
| >12 | 9 (12.7) |
| NA | 1 (1.4) |
| Stay with family in Korea | |
| Yes | 16 (22.5) |
| No | 55 (77.5) |
| Visiting institute ^{a)} | |
| Severance Hospital | 18 (25.4) |
| Seoul National University Hospital | 15 (21.1) |
| Asan Medical Center | 12 (16.9) |
| Korea University Anam Hospital | 10 (14.1) |
| Seoul St. Mary's Hospital | 7 (9.9) |
| Samsung Medical Center | 7 (9.9) |
| Seoul National University Bundang Hospital | 5 (7.0) |
| Kyungpook National University Hospital | 1 (1.4) |
| Others | 3 (4.2) |
| Division of visiting ^{a)} | |
| General | 4 (5.6) |
| Hepatobiliary & pancreas | 20 (28.2) |
| Upper gastrointestinal | 17 (23.9) |
| Lower gastrointestinal | 19 (26.8) |
| Endocrine or breast | 12 (16.9) |
| Vascular | 1 (1.4) |
| Transplantation | 12 (16.9) |
| Pediatric | 4 (5.6) |
| Hernia | 2 (2.8) |
| Others | 4 (5.6) |
| Main role ^{a)} | |
| Observation in outpatient clinic | 11 (15.5) |
| Observation in surgery | 55 (77.5) |
| Participation in surgery (assistant) | 29 (40.8) |
| Patient care | 9 (12.7) |
| Clinical research | 20 (28.2) |
| Basic research | 8 (11.3) |
| Others | 8 (11.3) |

SCI(E), Science Citation Index (Expanded); NA, not answered.

^{a)}Multiple responses possible.

Table 3. Satisfaction of visiting program

| Variable | No. (%) |
|---|-----------|
| Satisfaction of visiting program | |
| Yes | 70 (98.6) |
| No | 1 (1.4) |
| Recommendation to others | |
| Yes | 70 (98.6) |
| No | 1 (1.4) |
| Inconvenience during visiting periods ^{a)} | |
| Language | 36 (50.7) |
| Food | 8 (11.3) |
| Accommodation | 3 (4.2) |
| Cost of living | 10 (14.1) |
| Transportation | 1 (1.4) |
| Weather | 3 (4.2) |
| Others | 10 (14.1) |

^{a)}Multiple responses possible.

2 or more institutes and divisions of surgery. The main roles of the visiting scholars included observation or participation in surgery and clinical research (Table 2).

The responses on the scholars' impressions of surgery in South Korea included high quality of advanced surgical techniques, especially for minimally invasive surgery; a well-organized system for surgery; many diligent and skillful surgeons but under heavy workloads, etc. All but 1 international visiting scholars (70/71) were satisfied with their experiences in South Korea and would recommend it to friends or colleagues in their country of origin. The reasons for this level of satisfaction and/or recommendation were due to a large number of cases for training, novel knowledge of innovative surgery, good outcomes of surgery, excellent quality of surgical care, nice and friendly doctors and a well-structured health-care system. The reason for dissatisfaction was the lack of opportunity to participate hands-on in the surgical procedures. The inconveniences that arose during the visiting periods stemmed firstly from the language barrier, high cost of living, and different foods amongst others (Table 3).

The univariate analysis of those staying for longer than 1 year revealed the age and funding source to be significant factors ($P = 0.047$ and $P = 0.033$, respectively). The scholars aged 20–39 years who were funded by their own government or institute stayed significantly longer than 1 year (Table 4).

DISCUSSION

The number of international visiting scholars to surgical departments in Korea has been on the increase recently and coming from an array of countries. They are mostly young surgeons gathering information through word of mouth from friends or colleagues and from international conferences.

Table 4. Univariate analysis for the factors of more than 1 year of duration of visiting (n = 70)

| Variable | >1 year, No. (%) | P-value |
|-----------------------------------|------------------|---------|
| Sex | | >0.999 |
| Male | 7 (13.7) | |
| Female | 2 (10.5) | |
| Age (yr) | | 0.047* |
| 20–39 | 9 (20.5) | |
| 40–59 | 0 (0) | |
| 60–65 | 0 (0) | |
| Position in their hospital | | 0.982 |
| Professor or staff | 5 (12.2) | |
| Private surgeon | 1 (10.0) | |
| Fellow or resident | 2 (11.8) | |
| Student | 0 (0) | |
| Duration of medical practice (yr) | | 0.178 |
| 0–9 | 8 (19.0) | |
| 10–19 | 1 (4.2) | |
| 20–29 | 0 (0) | |
| Funding source | | 0.033* |
| Own government or institute | 7 (25.9) | |
| Korean government or institute | 0 (0) | |
| Private resource | 2 (8.0) | |
| Stay with family in Korea | | 0.091 |
| Yes | 4 (26.7) | |
| No | 5 (9.1) | |
| Division of visiting | | |
| General | 0 (0) | >0.999 |
| Hepatobiliary & pancreas | 1 (5.0) | 0.430 |
| Upper gastrointestinal | 2 (11.8) | >0.999 |
| Lower gastrointestinal | 3 (15.8) | 0.696 |
| Endocrine or breast | 3 (25.0) | 0.177 |
| Vascular | 0 (0) | >0.999 |
| Transplantation | 1 (9.1) | >0.999 |
| Pediatric | 0 (0) | >0.999 |
| Hernia | 0 (0) | >0.999 |
| Others | 0 (0) | >0.999 |

* $P < 0.05$.

Almost all of the participants in this study have been satisfied with the program, stating as reasons the advanced techniques for minimally invasive surgery, a well-organized system for surgery, and the high quality of surgical care in Korea. As the majority of the visiting scholars funded themselves privately, this limited their period of stay. As expected, the language barrier and high cost of living were identified as inconveniences during their visits.

Programs for international visiting scholars in developed countries are numerous, and many hospitals or universities accept international scholars to improve global health by sharing their advanced knowledge of medicine [10,11]. These programs are also open to medical students, residents, fellows, or postdoctoral researchers in mid- to low-income countries, attracting many applicants [12-15]. Collaboration and the sharing

of resources and knowledge within medicine are essential to improve disease management on a global scale, even in this era of neoliberalism where world-wide free trade puts nations into competition with each other [16].

The Minnesota Project was one of the aid programs sponsored by the United States government to the South Korean government where the University of Minnesota provided Seoul National University with staff and equipment to rebuild the medical, engineering, and agricultural infrastructures after the Korean War. The ultimate goal of the Minnesota Project in medicine was to enhance medical education and research in South Korea. The adoption of the scientific methods of Western medicine into Korean medical education and research was key. From 1954 to 1961, professors and faculty members from the College of Medicine, University of Minnesota dedicated their time and energy in educating and training more than 200 professors, physicians, nurses, and hospital administrators from Seoul National University, Korea. Some of the faculty traveled to Korea and held advisory roles to improve the quality of medical practices. The humanitarian aid received to raise the standards of Korean medicine has borne fruit resulting in the current leading health-care system and clinical research of Korea [8].

The South Korean economy has grown rapidly since the 1970s coining the term 'Miracle on the Han river' and became an official member of the OECD in 1996. This shift from aid recipient to donor country has allowed South Korea to be in a position to give medical aid [9]. The Dr. Lee Jong-wook-Seoul Project is an official development aid program with the aim to give back the help that postwar Korea received through the Minnesota Project to other countries in need [17]. The project consists of offering education to doctors from developing countries so on their return they will be able to utilize the newly acquired knowledge on the treatment of their patients. Through such projects, Korea, as a developed country, is taking on the role to participate in improving global health through the education of health care professionals from mid- to low-income countries.

The Medical Korea Academy is a training program for international visiting scholars established in 2007 and is hosted by the Korea Health Industry Development Institute. Its goal is to provide foreign medical professionals with an opportunity to experience the advanced health-care systems and techniques of the Korean medical services by participating in training programs offered by various world-renowned medical institutions. Since its founding in 2007, more than 800 medical professionals from more than 30 countries, including Mongolia, Russia, Saudi Arabia, Kazakhstan, and China, have visited Korea through this program, with very positive feedback. This program is still open to international visiting scholars, with an interest in visiting Korea to attain further medical and surgical experiences [18]. Since 2013, the Korean

government through its department of health has been issuing a limited medical practice license for international visiting surgeons under stringent criteria to those who have completed the prescribed 3-month pretraining course. This temporary license allows overseas surgeons not only to observe but learn through participating in surgical procedures under the tutelage of the attending surgeon who is responsible for the patient and education of the visiting surgeon [19,20]. The learning scope can vary from basic surgical skills to experiencing advanced surgical techniques depending on the visiting surgeons' level of experience. Due to the many hurdles and time lag required to obtain the temporary clinical license, it is currently only being offered in a limited number of teaching hospitals throughout Korea, thus resulting in many international visiting surgeons staying for a brief period only. This has been identified as an area with room for improvement.

The International Affairs Committee of the Korean Surgical Society is making efforts to improve the quality of the programs for international visiting scholars. The committee opened a symposium for international visiting scholars to present their experiences, research work, and differences in the medical practice between Korea and their own countries [21] with the aim to improve the quality of the program. The committee maintains a social media web page for the exchange of information and open conversations with international visiting scholars where they can access hospitals' information, research projects, life in Korea and discuss medical or global issues freely [22].

In conclusion, the number of international visiting scholars at surgical departments in Korean hospitals has been on the increase with high satisfaction levels. Potential for improvement has been identified such as funding sources and lengthening visiting periods to maximize the benefits of the program.

SUPPLEMENTARY MATERIAL

Supplementary Fig. 1 can be found via <https://doi.org/10.4174/astr.2020.99.4.189>.

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Conflict of Interest

No potential conflict of interest relevant to this article was reported.

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