British Association of Paediatric Surgeons International Affairs Committee: a report of international fellowships

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Objective **This paper describes the fellowship programme of the International Affairs Committee of the British Association of Paediatric Surgeons.**

Patients and methods **The selection of low-income and middle-income country (LMIC) fellows from 2005 to 2016, their funding, experience, and current roles are described. Qualitative and quantitative analysis was performed.**

Results **Thirty-eight trainees from 21 LMIC were awarded fellowships over the 11-year period. Thirty-two have completed the fellowship at time of writing, all are now in consultant positions. Obtaining a visa was the single most cited barrier to starting the fellowship. Twenty completed the questionnaire. Hundred percent felt the fellowship had contributed to personal development and 71% had altered clinical practice subsequent to their experience. Thirty-three percent have gained research opportunities.**

Conclusion **This evaluation supports LMIC-high-income country partnerships and highlights the benefits of fellowships to both the individual surgeon, their department and patient population.** ***Ann Pediatr Surg*** **14:225–230**
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Introduction

Recent global health policies recognise that universal access to safe surgical care and anaesthesia in low-income and middle-income countries (LMICs) is integral to the improvement of children's health. Several barriers to surgical care have been identified and prioritised as areas for intervention, including a lack of workforce, low levels of research output and limited integration and funding of paediatric surgery within existing policy and health infrastructure. Where possible, it is best for development to be led by, or in partnership with, health care workers in LMIC, who are best equipped to address unmet needs in a sustainable manner [1–3].

The creation of fellowships and observerships that facilitate trainees from LMICs to travel to high-income countries (HICs) and observe clinical practice is one of the several education models used to address the problem of shortage of trained paediatric surgeons. In Africa, it is estimated that there is only one paediatric surgeon per six million children aged 0–14 years, whereas the corresponding figure in the USA is one in 100 000 [4].

The International Affairs Committee (IAC) of the British Association of Paediatric Surgeons (BAPS) has, since 2005, awarded annual scholarships and fellowships to trainee and newly qualified paediatric surgeons from around the world. The available awards include the Hugh Greenwood Fellowship (HGF), the Lister Fellowship and the BAPS Scholarship (see box). The awards range in value from funding recipients to attend and be present at BAPS scientific congresses to facilitating longer visits to the UK, where trainees can spend time observing practice in tertiary referral centres.

Summary of BAPS fellowships and scholarships

Lister Fellowship	Offered to overseas paediatric surgeons from LMICs, who are within the first 2 years of consultancy, to attend the annual BAPS scientific congress (monetary value £1500)
HGF	Enables paediatric surgeons in LMICs to spend time in paediatric surgical units in the UK, for up to three months (monetary value £3000)
BAPS Scholarships	Enables paediatric surgery trainees from LMICs to attend the annual BAPS conference (monetary value £1500)

The aim of this paper is twofold: first to describe the 11-year experience of the BAPS IAC fellowships and second to evaluate the effect that the fellowships have had on recipients' professional development, and their ability to contribute to their paediatric surgical community.

Patients and methods

Recipients of the fellowships between 2005 and 2016 were identified from a prospective database maintained by the BAPS IAC. Data pertaining to country of origin, number of fellowships awarded per annum, completion of fellowships and professional position at the time of writing were derived from this database. In addition, fellows were contacted via e-mail and asked to complete an electronic questionnaire (Fig. 1). The questionnaire was designed by authors K.L. and H.S. and sought to obtain subjective information regarding personal experience and quantify the effect that the fellowships have had on three key aspects of their work: (a) effect on professional development and career progression, (b) contribution to local hospital and (c) contribution to the wider community. There was an 8-week questionnaire

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Fig. 1

Questionnaire
Please state your country of work
Please state the year of your scholarship award
Please select the scholarship awarded to you *(select from below)*
Hugh Greenwood Fellowship, Hugh Greenwood BAPS Paediatric Surgical Traveller, Lister Fellowship, BAPS Scholarship
How did you first hear about the BAPS scholarships/fellowships?
Please tell us briefly about your experience in the UK during your scholarship/fellowship
Do you believe that the scholarship/fellowship has benefited your personal development and career progression?
Yes/No/Uncertain - Please provide reason(s) for answer to question above
Do you believe that the scholarship/fellowship has benefitted your contribution to your hospital?
Yes/No/Uncertain - Please provide reason(s) for answer to question above
Do you believe that the scholarship has benefitted your contribution to the wider community in your country of work?
Yes/No/Uncertain - Please provide reason(s) for answer to question above
Would you recommend to one of your trainees or colleagues to apply for a BAPS scholarship or fellowship in the future?
Yes/No
Were you able to gain a visa to enter/work in the UK following the receipt of your scholarship or fellowship?
Yes/No

Questionnaire sent to the recipients of the BAPS IAC fellowships. BAPS, British Association of Paediatric Surgeons; IAC, International Affairs Committee.

response period from May to June 2016, where four further reminders were sent at 2-week intervals, following which data collection was closed.

Quantitative and qualitative methods were used in the analysis of data. We applied principles of thematic analysis to interpret responses to open answer questions. This method, commonly used in psychology, is well suited for our data set. It allows for identification of patterns and adds a systematic element to the analysis [5]. In the first phase, two authors (H.S. and K.F.) reviewed responses and identified core themes in the data set. This provided the basis for a coding system which was then used to classify responses in terms of themes in a second round of analysis. The advantages of this approach are that it allows for flexibility and allows categories to emerge from the data itself, rather than the researchers' objectives. A subgroup analysis was also conducted to compare fellows' views of their experiences according to the fellowship received.

Formal ethical approval was not required by institutional guidelines for anonymised questionnaire data. Informed consent was obtained from all individual participants included in the study.

Results

Overall experience

A total of 38 fellowships were awarded over the 11-year period to trainees from 21 LMICs: Africa ($n=18$), Asia ($n=10$), South-East Asia ($n=4$) and the Middle East ($n=6$) (Fig. 2). Figure 3a shows the overall number of fellowships awarded per year, and Fig. 3b shows the breakdown of type of fellowship received in questionnaire respondents. All recipients were trainees in paediatric surgery within 2 years of completion of training, or within 2 years of consultancy after accreditation as a paediatric surgeon.

Overall, 32/38 completed the fellowship. These 32 are now in consultant positions, where 25/32 (78%) are heads of department, five (16%) are leading on laparoscopic training in their centre, one has taken up a post in paediatric urology (Sudan) and one in trauma (India). Of the six trainees yet to commence the fellowship, two were only awarded in 2016 and four have been unable to carry it out as they have not been granted a visa (countries of origin: Afghanistan, Pakistan, Iran and Syria). Overall, 11 fellows had several attempts before a visa was granted.

Fig. 2

Map of home country of recipients of BAPS IAC fellowships 2005–2016. BAPS, British Association of Paediatric Surgeons; IAC, International Affairs Committee.

Table 1 Emergent core themes from analysis of questionnaire responses

Identified core themes		
Benefits to personal development (number)	Benefits to hospital (number)	Benefits to local community and paediatric surgery training (number)
Improved knowledge or altered practice ($n=7$)	Improved/new teaching programme initiated ($n=8$)	Implementation/redesign of training programme ($n=4$)
New operative methods/techniques ($n=4$)	Implementation of health care infrastructure, e.g. MDT, theatre safety ($n=5$)	Advisors to local government ($n=1$)
Mentor contacts ($n=2$)	Improved patient outcomes ($n=3$)	Improvement in local health infrastructure ($n=2$)
Research skills and opportunities ($n=5$)	Facilitation of engagement in global work ($n=2$)	Engagement with global surgery initiatives ($n=2$)
Teaching skills ($n=1$)	Improvement or introduction of new surgical techniques ($n=1$)	
Communication skills ($n=1$)		
Total 20	19	9

MDT, multidisciplinary team.

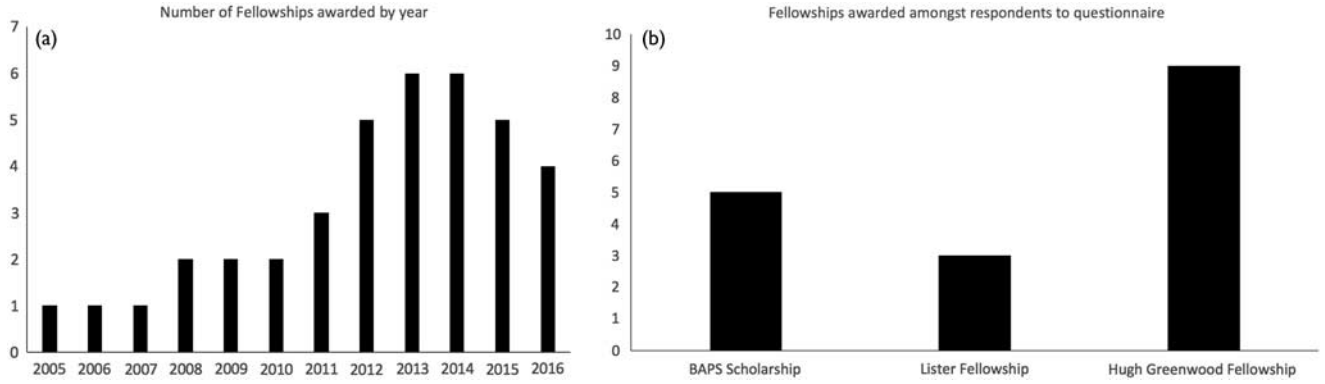
Questionnaire response

There was a 53% response rate for questionnaire return (20/38). Of the 20 responses, 17 had completed the fellowship at time of return of questionnaire. Of these, 100% felt their fellowship had benefited their personal development. Moreover, 71% of fellows (12/17) reported altering their clinical or operative practice in light of knowledge gained during their fellowship visits, including some whose clinical outcomes had consequently improved. In addition, 33% (3/9) of HGF fellows reported improved research skills and opportunities, including one recipient who subsequently led the GlobalSurg Project in their home country (Nigeria) [6,7].

Similarly, 100% of respondents agreed that the fellowships had benefitted their contribution to both their hospital and local community. Table 1 reports emergent core themes. The most commonly reported benefits to the hospital were implementation of novel health care infrastructure including multidisciplinary team (MDT) management of congenital and oncological cases and establishing new or improving on paediatric surgery training pathways. Two participants (from Malaysia and Nigeria) have encouraged and facilitated colleagues in engaging in global surgical research. Restructuring teaching and training curricula was commonly cited as benefits to the wider community, in addition to contributing to wider public health measures.

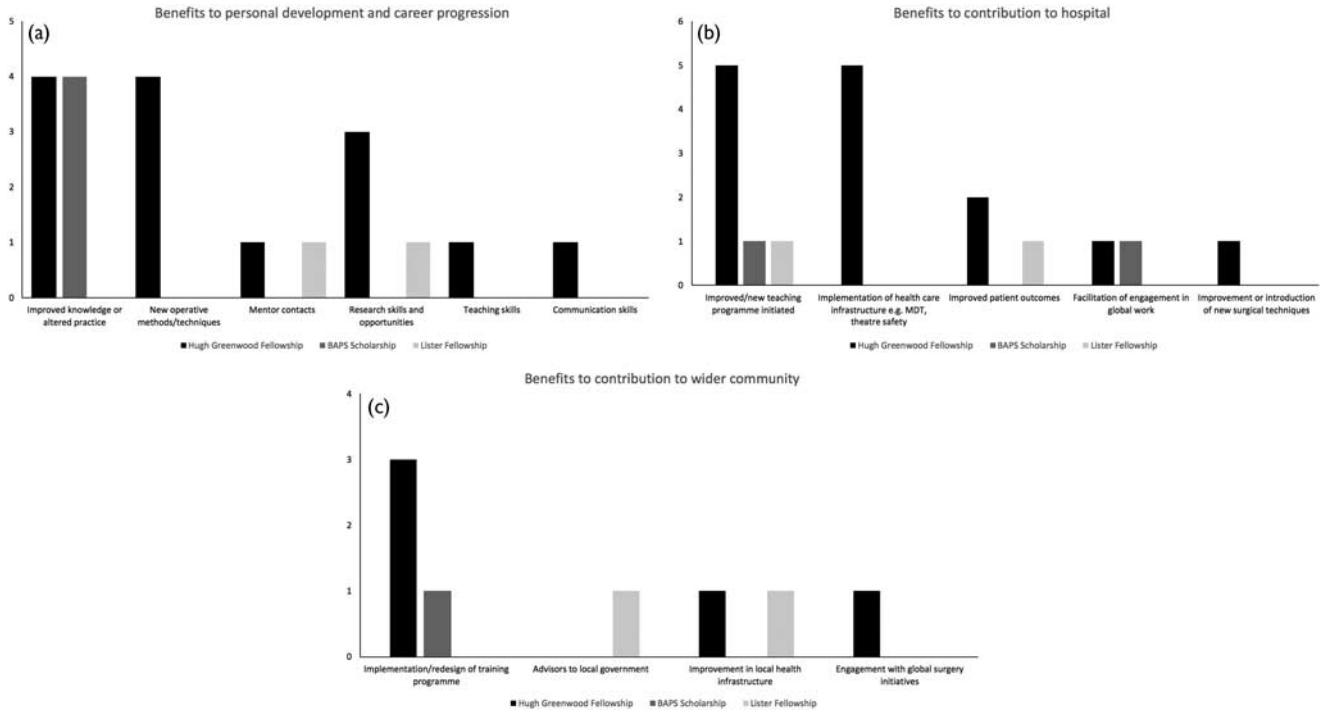
Figure 4a–c illustrates the benefits cited by respondents according to the fellowship they were awarded. Most trainees who went on to adopt health infrastructure were motivated by the HGF. Trainees from all fellowship subgroups cited specific benefits to the community.

Fig. 3



(a) Graph showing the number of BAPS IAC fellowships awarded per year (2005–2016). (b) Graph showing the breakdown of type of fellowship awarded ($n = 17$) for fellows who returned the questionnaire. BAPS, British Association of Paediatric Surgeons; IAC, International Affairs Committee.

Fig. 4



(a) Graph showing reported benefits to personal development and career progression, subdivided by fellowship. (b) Graph showing reported benefits to contribution to hospital subdivided by fellowship. (c) Graph showing reported benefits to contribution to wider community subdivided by fellowship.

Again, the largest subgroup was HGF recipients. Of interest, some physicians in one Lister Fellowship (2012) reported that they attended a lecture on injury prevention at the BAPS conference, which inspired them to produce a video for education and public awareness of injury prevention in India.

In addition to the aforementioned engagement in research, one fellow is editor of the *African Journal of Paediatric Surgery* and one is secretary of the Pan African Association of Paediatric Surgeons. Two were commissioners on the Lancet Commission of Global Surgery (2015). Later in his successful consultant career in Kampala, Uganda, the first HGF was invited to deliver the Hugh Greenwood lecture at the annual BAPS conference.

Discussion

This evaluation of the BAPS IAC fellowships reveals universal satisfaction among recipients regarding the value of their experiences. The open-ended nature of the questions allowed for exploration of benefits that we would not have otherwise questioned directly. Trainees report that their clinical practice and operative knowledge has improved, and in some cases, they have measured a corresponding improvement in patient outcomes. Furthermore, it is apparent that their engagement

within the community has been enhanced and many have gone on to implement new services (including safety protocols and MDTs), redesign local training pathways and collaborate with local authorities to change public health policy and health care funding.

A high number of BAPS IAC fellows are now in lead professional roles in their institutions and countries, in both clinical and academic capacities. In Africa, this may reflect the fact that the IAC select fellows based on recommendations made by Pan African Association of Paediatric Surgeons. Allowing selection to take place locally before IAC review enables the most motivated individuals and potential leaders to be given this opportunity. Africa is the region in which the highest number of fellowships has been awarded. This is partly because fellowships were limited to Africa in early years owing to limited funding. The programme has since expanded to other low-income and middle-income regions with the accumulation of funds.

Locally driven research in LMIC settings has been identified as an area requiring urgent investment [8,9]. The value of BAPS IAC fellowships here is twofold. Many recipients report improving their research and presenting skills as a principal benefit of their experience. Furthermore, a number of them were stimulated to join international research platforms such as Globalsurg, and they could encourage and direct colleagues to do the same. Locally driven research maximises research impact, as LMIC researchers are better placed to influence policy at regional and national levels [10].

Short, immersive fellowships also have disadvantages. They are expensive, and critics argue that the money would be better and more appropriately spent by local authorities in LMICs themselves [4]. Additionally, it may encourage trainees to leave their countries of origin to seek training or consultant jobs in HICs. This 'brain drain' effect is a major contributor to the existing surgical workforce shortage in many LMICs, particularly in Africa [11]. Overall, 180 (78%) of 231 practicing African paediatric surgeons are working in Nigeria or Egypt [12]. A database maintained by COSECSA (the College of Surgeons of East, Central and Southern Africa) reveals that there is only one paediatric surgeon serving the entire population of Zambia and Mozambique, and two in Malawi [13]. Being mindful of the 'brain drain' effect, BAPS IAC fellowships are short term and targeted at training only, with the clear expectation of return to home country. Maintenance of contact is encouraged and provides potential institution partnership links for the future.

Our findings suggest that there are unique benefits to LMIC surgeons undertaking fellowships and observerships in HICs, particularly the adoption of evidence-based health structures such as MDTs, theatre safety protocols and exposure to research methodology and opportunities. The benefits and drawbacks of fellowships must be weighed against those of other methods of LMIC–HIC partnerships. A common example is HIC surgeons conducting short term trips to LMICs ('silo' approach). Although these visits allow efficient delivery of care and training that is relevant to local disease burden, there is little potential for sustainable improvements in ongoing care and capacity building [4,14]. Fellowships and observerships meanwhile can empower individuals to work closely with local authorities and introduce systems and policy that they have observed abroad and feel would be appropriate to introduce to their patient populations and institutions.

Several equivalent HIC paediatric surgery organisations in other countries sponsor fellowships for paediatric surgeons in LMICs. The Americans and Canadians [American Paediatric Surgical Association (APSA), Canadian Association of Paediatric Surgeons], and additionally the World Federation of Associations of Pediatric Surgery (f) all offer travel fellowships. APSA and Canadian Association of Paediatric Surgeons fellowships, like BAPS, sponsor LMIC trainees to travel and attend the APSA annual meeting. Fellowships offered by WOFAPS sponsor and facilitate visits to paediatric surgical centres in HICs. These organisations have not published how their fellowships are funded, evaluations or outcomes, but generic information can be found on a paediatric surgery website [15]. The Pacific Association of Pediatric Surgeons (PAPS) have reported their 25-year experience of the James Warden Guest Assistance Program. The programme is funded through donations amounting to $400 000 from PAPS members and has facilitated 29 paediatric surgeons to attend and speak at the PAPS annual conference. They view the most important outcome of this endeavour to be the creation of relationships which will support trainees in the future [16]. A search of several European societies [Germany (DGKCH), France (SFPC), Italy (IPS), the collaborative European society (EUPSA)] and the South African specialist society (SAAPS), did not reveal any equivalent fellowships.

The delivery of the BAPS IAC fellowships has been dependent on the generous donation by charitable fundraising and the fellowships are named accordingly by major donors. A future consideration for all fellowships is longevity. Many are reliant on charity and are therefore in no way guaranteed. Bidirectional partnerships may be a solution to part of this problem. There are well-known benefits of improved efficacy of the UKs National Health Service following its health care workers spending time working in LMIC, including exposure to novel pathology and advanced disease burden, experience of working in resource-constrained environments, and research opportunities in global health [17]. Similar experience has been reported from a reciprocal programme of general surgical residents in San Francisco, USA and Kampala, Uganda [18] and paediatric surgeons in Oxford, UK, and Moshi, Tanzania [19]. The UK-Tanzania paediatric surgery partnership has itself facilitated four Tanzanian trainee fellowships in Europe and the USA, and the UK-based team visits Tanzania once a year, with opportunities for UK trainees to attend also [19]. Furthermore, it has enabled collaborative research projects to be published and thus this information to be used as an advocacy tool for paediatric surgery resources in low-income and middle-income settings [20,21].

Conclusion

We have described the LMIC surgeon experience of BAPS IAC fellowships. The fellows reported improvements in training, service delivery, personal development

and engagement in academia. The results of this evaluation support ongoing if not greater use of funds towards such fellowships. Although trainees from HIC are often well equipped and financed to travel to LMIC for similar goals in establishing supportive professional and research networks, the reverse is not true. Developing HIC–LMIC training partnerships has the potential to improve training, while allowing the surgeon to direct his/her training according to the perceived needs of the population.

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Conflicts of interest

There are no conflicts of interest.

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