2018 UICC Technical Fellowship Programme Activity report
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Supported by:
1. Executive Summary

2018 was another strong year for the UICC Fellowship programmes (including the Technical Fellowship programme, the YY study grants and the African Cancer Fellowship programme), during which 158 applications were received and processed, and 73 cancer professionals and health workers from around the world were given the opportunity to visit a world-class mentor in their field and develop important new skills and knowledge in all aspects of cancer control.

Fellowships continue to be a foundational component of UICC’s Capacity Building offer, open to the whole cancer community including UICC members. The UICC Fellowship programmes seek to primarily build the capacity of individuals, with the expectation that they implement the skills they have learned upon their return home and, in turn, disseminate them to their colleagues or community. The main objective of the programme is to facilitate the exchange of knowledge and skills, and thereby build capacity of the health workforce. A recent survey of Fellows one year after their return home revealed that over 90% are still in touch with their host supervisors, thus fostering the formation of networks and long-term international collaborations.

In 2018, the Technical Fellowship (TF) programme received applications from countries as diverse as the Democratic Republic of Congo, the Philippines, Hungary, Mongolia and Costa Rica. Together, the TF programme and its sub-programme dedicated to Francophone Africa, “Bourses pour l’Afrique Francophone” (BAF), received 127 applications from 44 countries, with 53 fellowships subsequently awarded.

Of particular note, health workers from low-income countries such as Burkina Faso, Gabon and Niger, applied for and were awarded fellowships through the BAF programme, which was a very positive result for the programme, as relatively few applications have been received from these countries in the past. Indeed, 67% of the BAF fellowship awards were to low income countries.

2. Introduction

The TF programme, (formerly called the International Cancer Technology Transfer Fellowship programme (ICRETT)), was established in 1976 and has provided over 4’000 individuals the opportunity to gain new cancer control knowledge and skills through international one-month visits to another organisation. The TF programme is open to all individuals with a minimum of a Master of Science degree, and there are no fixed application deadlines, thus allowing candidates to schedule their project when it best suits them and their home and host institutes.

The Bourses pour l’Afrique Francophone (BAF) is a sub-programme of the Technical Fellowship Programme that was launched in 2017 as a two-year pilot in French aimed at encouraging more applications from the Francophone Africa region, which has been previously underrepresented in the TF applications, despite the need for trained cancer professionals and health workers. The BAF programme is specifically open to French-speaking health professionals based in Francophone Africa, who intend to visit another French-speaking country.

Since 2017, the TF programme has placed more emphasis on translational, clinical and implementation research than on basic research, and has also encouraged public health-related fellowships, aligned with the mission of UICC and its membership, and global commitments such as the 2017 Cancer Resolution. For example, the programme welcomes fellowship projects on topics including cancer prevention and gaining expertise in cancer registries, diagnosis and treatment as well as survivorship and palliative care.
3. Promotion of the Technical Fellowship Programme

By widely promoting its fellowship opportunities, UICC aims to encourage applications from across the globe so that cancer professionals and health workers from all regions can equally benefit from this valuable opportunity to develop skills and knowledge across the full spectrum of cancer control.

The TF Programme is promoted through newsletters and social media, e.g. LinkedIn and Twitter and also through the UICC website (www.uicc.org) in the form of news articles, blogs and testimonials. The Capacity Building newsletter reaches over 1’800 subscribers, while the UICC Members newsletter is sent to UICC’s extensive network of over 1’000 member organisations in 171 countries.

Please follow the following links for examples of promotional activities:

- Promotion through the Capacity Building Newsletter
- Case studies published on the UICC website
- Blog by a Fellow from Togo from Francophone Africa about his fellowship visit
- Blog by UICC’s Fellowship Manager looking back at 2018.

The programme was also promoted during the World Cancer Congress, as mentioned in more detail in section 5.

4. Application and Reviewing Process

The TF programme is open all year round, and for the two-year pilot of the BAF programme, there have been two calls per year. In 2018, they opened on 6 February and 1 October and remained open for two to three months.

The online proposalCENTRAL grant management system has been used for the UICC fellowships since 2013. For the BAF programme, wherever possible the online application process was translated into French, and applicants were provided with step-by-step guidelines and a video in French.

After eligibility checks are made, between two and three international expert reviewers review each application online, providing scores and comments on the quality, feasibility of the project, the applicant’s background and the potential long-term impact of the proposed project. The three programme chairs provide guidance regarding the choice of appropriate reviewers and arbitrate on the final funding decisions.

The TF programme is co-chaired by Prof. Nicol Keith (Research Chair) and Dr. Robert Jones (Clinical Chair), both from the Institute of Cancer Sciences, University of Glasgow, Scotland, UK, and the BAF programme is chaired by Prof. Abdellatif Benider, Centre Mohammed VI pour le traitement des cancers, Centre Hospitalier Universitaire Ibn Rochd Casablanca, Casablanca, Morocco.

In 2018, a total of 131 experts across all the disciplines provided reviews for the UICC Fellowship programmes (please click here for the names of those who supported the TF and BAF programmes in 2018). There was a good international diversity of reviewers, who came from Africa, Brazil, India, China and Jordan as well as US and Europe, and several UICC Fellows were invited as reviewers.
5. Results of the Technical Fellowship programme

a) Focus of awarded Technical Fellowships

In 2018, the majority (47%) of awarded fellowships related to cancer treatment, which is similar to previous years. More specifically, treatment topics included radiotherapy, surgery and chemotherapy, with radiotherapy focused projects the most popular. The second most popular discipline was early detection, diagnosis and prognosis (26% of awardees) and cancer control, survivorship and outcomes research (15%). Similar to the BAF fellowship projects in 2017, the main topics chosen by BAF fellows in 2018 were related to early detection, diagnosis and prognosis, cancer registries, treatment and palliative care.

Below are a few examples of fellowships awarded in these topics.

Cancer Treatment: Chemotherapy and Pain Management

Dr Mahamadou, a BAF Fellow from Niger, visited Yalgado University Hospital in Burkina Faso to learn chemotherapy and pain management of paediatric patients with retinoblastoma. “The fellowship gave me confidence to do better to improve the quality of care for children with cancer. It has been a rewarding experience and I have learned that the cohesion of a team is the main source of a positive result.”

Early detection, diagnosis and prognosis: Pathology

Mr. Ajetunmobi from Nigeria visited University Hospital Cologne, Germany on a Technical Fellowship funded by Prevent Cancer Foundation to study the expression of EGFR and Her2 in prostate adenocarcinomas. “The exposure I gained regarding the preparation of FISH (fluorescent in situ hybridisation) sections proved to be pivotal to the possibilities of assessing gene expression in routinely diagnosed cancers and their impact on patient outcome. Preparation of tissue micro-arrays serve as a cost saving method of performing molecular analysis on large numbers of biomaterial, especially under resource constraints.”
Cancer control, survivorship and outcomes research

Ms Quesada Soto from Costa Rica visited Instituto de Biologia Molecular y Celular del Cancer, Salamanca, Spain to learn skills in cancer genetic counselling. "I am now able to explain potential initial conclusions based on genetic tests to patients and the potential implications in each scenario. In Costa Rica I will work with medical oncologists and a support team to establish a programme of cancer genetic consultation and on the development of guidelines for all individuals and families identified as hereditary mutation carriers."

b) Global reach of the Technical Fellowships

Together, the TF and BAF programmes received 127 applications in 2018, 104 to the TF programme and 23 to the BAF programme. 44 TF and 9 BAF fellowships were awarded. The list of Fellows awarded a TF or BAF can be found at the respective links.

Map 1 illustrates the worldwide coverage of the programme, showing the 44 countries from which the BAF and TF applicants in 2018 originate, with the size and intensity of the dots corresponding to the number of applicants per country. As in previous years, the vast majority (40%) of applicants come from India, with Egypt and Senegal being the next two countries with the most applicants, due in part to the BAF programme.

Map 1: 127 applications came from 44 different countries

The 104 TF applications came from 34 different countries, 14% from high-income countries, 80% from middle-income countries and 6% from low-income countries, whereas the 23 applications to the BAF programme came from 12 different countries within the Francophone Africa region, 30% from middle-income countries and 70% from low-income countries.

The 44 TF awardees came from 20 different countries, 9% from high-income countries, 82% from middle-income countries and 9% from low-income countries, whereas the 9 BAF awardees were from nine different countries, 67% from low-income countries and 33% from middle-income countries.
Map 2 shows 29 countries from which the recipients of the 53 TF and BAF awards originated in 2018, with the most awards going to applicants in India (18), with two Fellows each from Cuba, Egypt, Georgia, Nepal, Nigeria, Pakistan and Tanzania and one each to the other countries shown on the map.

Map 2: 53 cancer professionals benefitted from a TF or BAF from 29 different countries

As in previous years, most Fellows chose host organisations in the USA (30%) (see Graph 1 below). France and Canada were the next most visited countries for awarded Fellows, due in part to the BAF programme, with UK and Germany also common destinations for the TF. While 85% of Fellows (88% of TF and 66% BAF) visited high-income countries (down from 95% TF in 2017), low-income countries such as Burkina Faso and Senegal as well as lower and upper middle-income countries such as Algeria, Botswana, Malaysia and Mexico, were visited by awarded Fellows.

Graph 1: Distribution of 2018 awarded Fellows by host organisation country

There were several examples of regional visits by Fellows to institutions in nearby countries with similar contexts. For example, Fellows from Tanzania visited Botswana, Fellows from Rwanda visited Senegal and from Cuba to Mexico. Please see Map 3 for more examples of regional visits, with the arrows indicating the direction of travel, from the home organisation to the host organisation.
In terms of the BAF programme, Map 4 demonstrates the countries of origin of the BAF Fellows awarded in 2018.

Although initially the intention was to fund only inter-regional fellowships within Francophone Africa, after the first call in 2017, it became clear that on occasion, for countries more developed in terms of cancer control, the skills required were not available within the region and applicants needed to go further afield. In total, six awarded Fellows performed their fellowships in Francophone countries outside the region, to France, Belgium and Canada, while three awarded Fellows went on regional fellowships to other African countries, including Algeria, Burkina Faso and Senegal.

Map 4: Origins of BAF awardees and the locations of their host institutions
c) Detailed analysis of 2018 results

**Overall Results**

Although the total of 127 applications received by TF and BAF in 2018 represents a decrease of 15% compared to the 149 received in 2017, the launch of the BAF programme in 2017 and the IARC Summer School\(^1\) on Cancer Epidemiology and Cancer Prevention that year resulted in more applications than usual.

Indeed, there was a 36% increase in applications in 2017 compared to 2016. In contrast, no IARC Summer School was held in 2018, and the application numbers for BAF were slightly reduced (seven less than in 2017). The number of total applications in 2018 was nevertheless 16% higher than those obtained in 2016.

Grouping the data from the TF and BAF calls together, it can be said that compared to 2016, the introduction of BAF in 2017 and 2018 has boosted the percentage of applications from low-income countries by six-fold and awards by four-fold, as shown in Table 1.

**Table 1**: Technical and BAF Fellowship applications and awards relative to the income of the home countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Total no. of Applications/ Total No. of Awards</th>
<th>% LIC Applications/ % LIC Awards</th>
<th>% LMIC Applications/ % LMIC Awards</th>
<th>% UMIC Applications/ % UMIC Awards</th>
<th>% HIC Applications/ % HIC Awards</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>109/47</td>
<td>3%/4%</td>
<td>73%/74%</td>
<td>7%/9%</td>
<td>17%/13%</td>
</tr>
<tr>
<td>2017 (incl BAF)</td>
<td>149/73</td>
<td>23%/16%</td>
<td>56%/62%</td>
<td>14%/14%</td>
<td>7%/8%</td>
</tr>
<tr>
<td>2018 (incl BAF)</td>
<td>127/53</td>
<td>17%/19%</td>
<td>58%/62%</td>
<td>13%/11%</td>
<td>12%/8%</td>
</tr>
</tbody>
</table>

**Technical Fellowships**

For TF specifically, the 104 applications received in 2018 represented a 13% decrease from the 119 applications received in 2017. 19 applications were still under review at the end of 2018 and were classified as "pending". 44 TF fellowships were awarded in 2018, and excluding pending applications, the overall success rate (i.e. % number of awards/applications) was 51%, which is comparable to 53% in 2017 when 63 fellowships were awarded (see Table 2).

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1 UICC has supported the IARC Summer School since 2012 with a small number of Fellowships, entitled IARC Development Fellowships that serve as a follow-on opportunity for Summer School participants to build their skills on a specific project relevant to their home institution. Summer School participants are awarded following a competitive selection process.
Table 2: Technical Fellowship applications and awards 2016-2018

<table>
<thead>
<tr>
<th>Year</th>
<th>No. of Applications (%Clinical/Research)</th>
<th>No. of Awards (%Clinical/Research)</th>
<th>Overall Success Rate* (Clinical (%) and Research (%))</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>109 (50%/50%)</td>
<td>47 (60%/40%)</td>
<td>43% (51% and 35%)</td>
</tr>
<tr>
<td>2017</td>
<td>119 (58%/42%)</td>
<td>63 (54%/46%)</td>
<td>53% (49% and 58%)</td>
</tr>
<tr>
<td>2018</td>
<td>104 (60%/40%)</td>
<td>44 (60%/40%)</td>
<td>51% (52% and 54%)</td>
</tr>
</tbody>
</table>

*Success rates calculated excluding pending applications

In 2018, there was overall a 60% to 40% distribution of the clinical versus research projects, regarding both applications and awards, which is comparable to recent years (see Table 1). The relative success rates of clinical versus research TF applications were comparable (52% to 54%) in 2018, which differs slightly to earlier years.

Bourses pour l’Afrique Francophone

For the BAF programme, applicants were not asked to differentiate between clinical and research, therefore this data is not available, however in 2019, applicants for both TF and BAF programmes will be asked to identify their project as public health, research or clinical in nature.

The 23 applications received by the BAF programme in 2018 represented a 23% decrease from the 30 applications received in 2017. However, overall, the quality of the BAF applications was considered by the Selection Committee to be higher in 2018 than in 2017. Table 3 shows the percentage of applications and awards per call.

Table 3: BAF Fellowship applications and awards 2017-2018

<table>
<thead>
<tr>
<th>Year of Programme</th>
<th>No. of Applications (%Call1/%Call2)</th>
<th>No. of Awards (%Call1/%Call2)</th>
<th>Success Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017</td>
<td>30 (40%/60%)</td>
<td>10 (30%/70%)</td>
<td>33%</td>
</tr>
<tr>
<td>2018</td>
<td>23 (65%/35%)</td>
<td>9 (55%/44%)</td>
<td>39%</td>
</tr>
</tbody>
</table>

The positive effect that introducing the BAF programme has had on the percentage of applications from and awards going to low-income countries can be seen in Table 3.

d) Themed fellowships

Since 2016, our partner Prevent Cancer Foundation (PCF) has provided funds for fellowships which are specifically focused on cancer prevention and early detection. In 2018, ten Fellowships were supported, including seven TF and three BAF fellowships. Two PCF funded Fellows came from high-income countries, six from middle-income (three from upper, three from lower) and one from a low-income country. These fellows are indicated with a star in the list of UICC Fellows awarded on the UICC website and are also featured on the PCF website.

If other cancer organisations are interested in learning more about supporting themed fellowships through the Technical Fellowship programme, they should contact the Fellowship team on fellows@uicc.org.
Over 70 UICC Fellows attended the 2018 World Cancer Congress in October in Malaysia. The impact of the TF and BAF programmes were presented in a Poster presentation entitled “Monitoring and evaluation of Union for International Cancer Control (UICC) fellowships on cancer control” presented by UICC Fellowship Manager Dr. Sally Donaldson (A-969-0003-00325), and the abstract was published in the Journal of Global Oncology (Journal of Global Oncology 2018 4:Supplement 2, 62s-62s).

In addition, a Meet’n Café Session entitled “Keeping it real: implementing knowledge across different settings” featured three UICC Fellows, Drs Fidel Rubagumya, Pesona Lucksom and Vikash Sewram, all of whom had been awarded Technical fellowships in the past. The challenges they experienced in implementing the knowledge they had learned was debated in a lively discussion between them and several UICC Fellows in the audience.

For members of the Association of UICC Fellows, a competition to win free World Cancer Congress registration was organised, and 13 previously awarded UICC Fellows, including Technical Fellows attended the WCC and were featured at the UICC stand in the Global Village through a powerpoint presentation.

6. Post-Award Evaluation

Awarded Fellows commit to an ongoing evaluation process after completing their one-month fellowship training. Within a month of completing the fellowship, the Fellow is required to submit an end-of-project report detailing the research progress and training accomplishments that occurred during the supported period. The end-of-project report includes the results achieved, and the papers published or in preparation.

Of the 53 fellowships awarded in 2018 (including TF and BAF), nine will take place in 2019 and 44 already took place in 2018. Of those, 22 host supervisors from 2018 have already submitted a performance assessment. Host supervisors evaluate the end of project reports and provide performance grades from on a 1 to 3 scale (1.00 = outstanding, 1.25 = excellent, 1.50 = very good, 1.75 = good, 2.00 = average, >=2.25 = below expectation). The average performance grade was 1.16, i.e. outstanding which is a positive indication of the programme’s success.

7. Measuring the long-term impact of UICC fellowships

In December 2017, 154 UICC Fellows who had completed a fellowship between 2013 and 2016 were invited to take part in an online survey where participants were asked questions about their fellowship experiences, and more in-depth interviews were also performed to further investigate impact. The results of the survey was published on the UICC Fellowships website in May 2018 and were presented at the World Cancer Congress in the form of a poster presentation. The in-depth interviews with Fellows can be found in the form of case studies on the UICC website.

The survey response rate was 77%, with 119 respondents completing it from 46 different countries. Most of the Fellows work in hospitals, treatment centres and research institutes, and are cancer professionals and/or clinicians, with the majority working in the fields of cancer biology, early detection, diagnosis and treatment.

The main reasons for applying included UICC’s reputation and the opportunity to be mentored by a renowned host supervisor, as well as the wide range of possible cancer control topics covered by the fellowship programme.
Over 57% of respondents rated the training they received during their fellowship visits as “extremely effective” and 79% found the host institution working environment “extremely positive”. Challenges experienced by Fellows during their visits included the perceived short duration of one month to achieve all the objectives in addition to the language barrier.

97% of Fellows were still in contact with their host supervisors one year after their fellowship, with 28% having already co-authored a journal publication with them. Over 85% of Fellows estimated that their skills in cancer control had improved “a lot” or “a great deal” as a result of the fellowship training, as illustrated in Graph 2.

Upon returning home, several Fellows launched new initiatives in cancer control, such as the setting up of a new cervical cancer screening program, the founding of a national cancer society and the organisation of a conference with the host supervisor as an invited speaker.

**Graph 2**: To what extent have your skills in cancer control improved as a result of the fellowship training?

72% of Fellows were able to apply the skills they learned on their fellowship “extremely or very effectively”, and only 9% “slightly effectively”. Fellows disseminated the knowledge learned by giving presentations to members of their home organisation, organising workshops and giving personal demonstrations.

Over 43% of Fellows established new collaborations in their country, 45% experienced professional growth and 27% increased the number of students supervised as a result of their fellowship. Over 90% of Fellows would like to apply for another fellowship themselves and would recommend it to their colleagues, indeed over 25% of the Fellows surveyed applied in the first place because other Fellows had recommended the programme to them.

Most Fellows were very satisfied with their fellowship experience and have been able to apply the knowledge gained and disseminated it to colleagues at their institutions.

92% of all respondents found the fellowship experience to be a unique opportunity for international training. Fellowships were considered to result in long term collaborations and to allow for professional growth. Overall, the UICC Fellowship programme was considered successful in building the capacity of and achieving effective knowledge transfer between cancer professionals.

8. Association of UICC Fellows

Upon the successful completion of a fellowship, Fellows are invited to join the Association of UICC Fellows (AUF). AUF members’ fellowship topics and research activities in addition to their contact details are published in the online AUF Membership Directory, which is available to alumni online as a password restricted website. AUF members receive periodic email information for upcoming events such as the
World Cancer Day and the World Cancer Congress and are a key audience for promotion of the fellowships. AUF members receive a certificate for their completed UICC Fellowship, and only AUF members are eligible to apply for further UICC Fellowships.

Other benefits of joining this association include new AUF members from low and middle-income countries being eligible to apply for a complimentary 12-month subscription to the UICC International Journal of Cancer, and being able to enter competitions, such as that held in 2018, when 13 AUF members won free registration for the World Cancer Congress in Malaysia. The aim of the competition was to highlight the Fellowship programme at the World Cancer Congress, using alumni of the programme as ambassadors for further promotion of the programme and to demonstrate the long-term impact fellowships have on their work, please click here for a presentation of the winning AUF members and their fellowship projects.

This association brings together an exclusive and extensive group of cancer professionals, and UICC is keen to continue to connect with these alumni, providing networking opportunities and encouraging the development of a supportive community of cancer professionals.

9. Technical Fellowship Programme Partners

The Technical Fellowship programme is supported by a group of partners including cancer societies and foundations.

UICC is very grateful for the continued support of its Technical fellowship partners and is also keen to encourage new partners to explore supporting the Technical Fellowship programme. If you would be interested in supporting this programme, please contact us at fellows@uicc.org

10. Future Plans

With continued funding, UICC aims to continue to offer the TF programme in line with its mission to support the cancer community by providing valuable opportunities to strengthen the health workforce for cancer and build networks to further cancer control efforts and impact. In the coming years, UICC would like to increase the number of fellowships offered, thereby extending their impact and reach. We will also continue to explore and respond to needs identified, for example, from regions, or countries who are under-represented in the applications received, but for whom the Fellowships could particularly be of value, as shown through the BAF programme.

UICC is continuing to encourage translational and implementation research over basic research and the 2019 Technical Fellowship programme will particularly encourage applications focused on public health. We have updated the application process so that candidates working in the public health sector, for example, who wish to set up cancer screening programmes in their countries, are able to apply with
greater ease. Registered nurses, public health specialists, pathologists, and social workers working in palliative care are also all strongly encouraged to apply.

In 2018, BAF will be further integrated into the TF programme. While remaining a separate application process in French, it will be further aligned in format, with an open call all year round.

11. Conclusion

A significant barrier to the implementation of cancer treatment and palliative care strategies in low- and middle-income countries is the fundamental lack of human resources². In many countries training in certain aspects of cancer control is simply not available or the limited number of cancer professionals inhibits opportunities for peer-to-peer learning.

Thanks to the financial support of UICC partners, the Technical Fellowship programme will continue to provide individuals with the opportunity to either visit others from the same region and by doing so spark the formation of local networks and collaborations, or alternatively travel further afield and benefit from individual training from world-class mentors in their field. In this way it is hoped that these international visits will overcome the gap in technical knowledge and expertise in cancer control and achieve greater global equity through knowledge transfer and best practice-sharing.
