UICC
global cancer control
A MEMBERSHIP ORGANISATION
FIGHTING CANCER TOGETHER

UICC Fellowships Activity Report 2020

Contents

1. Executive Summary

2020 was an unprecedented year of change for the entire world, and the UICC Fellowships portfolio of programmes, with its remit of promoting international knowledge exchange, was no exception. The Technical Fellowships and Bourses pour l'Afrique Francophone programmes, usually open 11 months of the year, closed for almost six months in 2020, following UICC's early decision in April to cease international travel for the remainder of the year in support of the global efforts to curb the pandemic. Awarded Fellows of these programmes as well as recipients of the 2019 YY Study Grants were advised to delay their fellowship visits until 2021.

This report summarises the year's results, providing details about the applications received and the fellowships awarded. As a result of the temporary closure of the programme, the application numbers were reduced compared to previous years. To support UICC members during this time and continue to provide them with access to individual training and learning opportunities in cancer control, the Virtual Fellowships for UICC members were launched in June 2020. Interest in the programme has steadily grown, with inspiring examples of individuals and organisations who have leveraged this opportunity to gain knowledge and collaborate across countries and contexts. The Virtual Fellowships will be a key offering in the Fellowships portfolio in 2021, and as the pandemic continues to evolve, will complement the established in-person fellowship opportunities offered through the portfolio. From data collected in 2020, it is clear that Technical Fellowships and YY Study Grants contribute to improvements in cancer control within their national context, with approximately 80% of Fellows reporting that the skills and knowledge gained had a positive impact on cancer patients and led to an improvement in the quality of their organisation's cancer services.

2. Fellowships Programme Partners

UICC would like to acknowledge and thank the Fellowships programme partners whose long-standing support has been particularly valuable during the year of the coronavirus pandemic.

3. Chairs and Review Committees

UICC would also like to highlight the invaluable support of the Programme Chairs of the Technical Fellowships and YY Study Grant programmes. The delivery of the Fellowships programme is dependent upon their continued support and expertise to help maintain a high standard of excellence in the selection of the individual fellows awarded.

- Research and Public health Chair of the Technical Fellowships and the YY Study Grants: Nicol Keith, Professor of Molecular Oncology (Experimental Therapeutics) at Institute of Cancer Sciences, University of Glasgow, Scotland, UK
- Clinical Chair of the Technical Fellowships: Robert Jones, Professor of Clinical Cancer Research at Institute of Cancer Sciences, University of Glasgow, Scotland, UK
- Bourse pour l'Afrique Francophone programme Chair, Benider Abdelatif, Professor of Clinical Research at the Faculté de médecine et de pharmacie de Casablanca, Centre Mohammed VI pour le Traitement des Cancers de Casablanca and Institut de Recherche sur le Cancer, Morocco.

UICC also thanks the 70 experts in cancer control from 33 countries, who have generously provided high quality reviews for the Technical Fellowships, the YY Study grants and BAF programmes (Appendix 1: Technical Fellowships, BAF and YY Study Grant review committee members).

A detailed description of the application and reviewing processes can be find in the Application Guidelines for each programme available on the UICC Fellowships website.

4. Introduction

The Technical Fellowships programme, formerly known as the International Cancer Technology Transfer Fellowship programme (ICRETT), was established in 1976 and since then has supported more than 4'130 fellowships. It has a broad scope and a global reach, providing professionals from around the world working in all disciplines of cancer control the chance to learn new skills and make new connections. The one-month visits can be far afield, crossing continents, or can be inter-regional, allowing Fellows to learn skills in a similar context to their own which can be effectively implemented on their return home.

The Bourses pour l'Afrique Francophone (BAF) is a sub-programme of the Technical Fellowships translated into French, which was launched in 2017, to encourage more applications from the Francophone Africa region. Despite its urgent need for trained health workers specialising in cancer, it had been continually underrepresented in the applications received. The BAF sub-programme is open to individuals based in Francophone Africa who intend to visit a French-speaking country for their fellowship visit. Since its launch, there has been a significant increase in both applications and awards to Francophone Africa, with 28 fellowships awarded to this region since 2017.

The Technical Fellowships and BAF sub-programme support fellowships in three main topic areas: clinical, research and public health. Whilst continuing to support and encourage applications across the spectrum of these topic areas of cancer control, in recent years, the programme's application guidelines and communications activities have placed greater emphasis on translational research and public health-focused fellowships, in alignment with the mission of UICC and global commitments such as the 2017 World Health Assembly Cancer Resolution (WHA70.12 "Cancer prevention and control in the context of an integrated approach". For example, UICC is keen to support applications from cancer professionals such as epidemiologists, cancer registrars and health educators, as well as those working in the clinical or research settings.

The Yamagiwa-Yoshida Memorial International Cancer Study Grants (YY Study Grants) programme supports international collaborative research visits of three months duration for established cancer professionals working in all disciplines of cancer research. Since its inception in 1975, the YY Study Grants have contributed to the professional capacity development of over 330 Fellows from over 40 countries. The YY Study Grants complement the Technical Fellowships, providing funding for cancer researchers working in any field, while the Technical Fellowships encourage applications in translational and clinical research over basic research. The opening of the 2020 YY Study Grants call was delayed to October as a result of the pandemic, with reviews and subsequent awards announced in early 2021. The majority of 2019 and 2020 YY Study Grant award winners will undertake their project visits in 2021.

The following report shares the results of the Fellowships programmes in 2020, which despite the Technical Fellowships and BAF sub-programmes being closed for almost six months, awarded 28 fellowships to cancer professionals coming from countries as diverse as Burkina Faso, Brazil, Croatia, and Mongolia and visiting the US, Europe and Asia.

This report also describes the success of the pilot Virtual Fellowships programme launched in June 2020 to support UICC member organisations continue to access these learning opportunities despite the travel restrictions and the ongoing global pandemic. In addition, the report highlights how additional support has been provided to fellowship applicants through weekly virtual 'office hours', and shares findings from a recent survey regarding the longer-term outcomes of the programme.

5. Programme Results

As a result of the pandemic, UICC took a decision to adapt, cancel or postpone activities and programmes that depended upon international travel, including the cancellation of the 2020 World Cancer Congress and the temporary closure of the Technical Fellowships programme and its sub-programme for Francophone Africa. The programmes closed in mid-April 2020, and awarded Fellows were advised to delay their fellowship visits until 2021. There were consequently relatively few fellowship visits made in 2020, with most of them being made by Fellows awarded at the end of 2019 who went on visits early in 2020 before the pandemic took hold.

The Technical Fellowships programme reopened at the beginning of October 2020, to allow for interested applicants to prepare and apply for fellowships in 2021 once travel restrictions eased. Similarly, the opening of the 2020 YY Study Grants call was delayed until October 2020, with awarded applicants notified in early 2021.

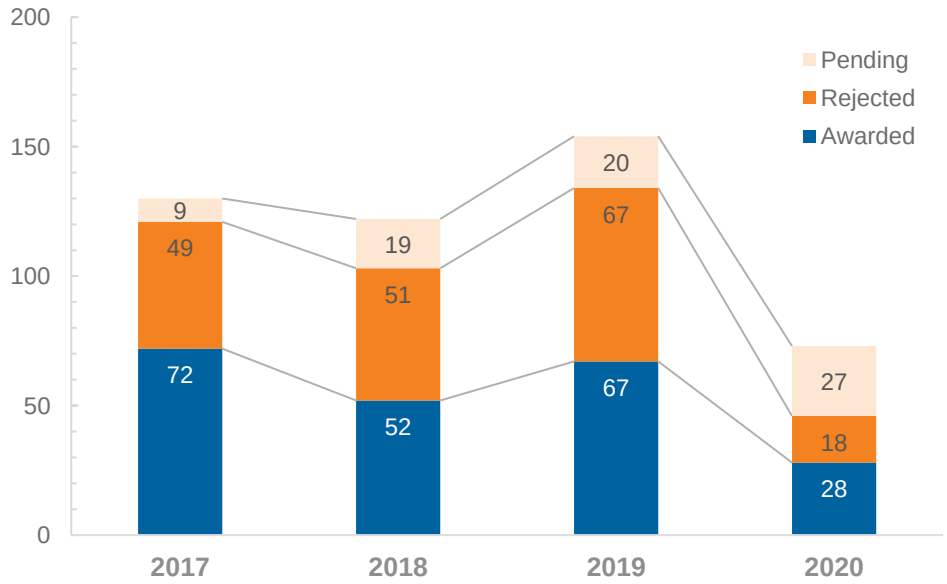
a) UICC Technical Fellowships and Bourses pour l'Afrique Francophone

Numbers of applications and awards

By the final submission deadline of 31st December 2020, the Technical Fellowships and its French sub-programme Bourses pour l'Afrique Francophone (BAF) had received 53 applications. In total, 17 fellowships were awarded, nine rejected, none were considered ineligible and 27 were pending a final decision at this time.

In addition, 20 applications from the 2019 Technical Fellowships and BAF calls were still pending a final decision at the end of 2019, resulting in a further 11 fellowships being awarded and nine rejected in 2020. Therefore overall, a total of 28 fellowships were awarded in 2020 from a total of 73 applications. Due to the global context and closure of the programmes, these results represent a decrease in the number of applications and awards processed compared to previous years (as illustrated in Graph 1).

Graph 1: Applications processed by the Technical Fellowships programme (including BAF)



Applications to the Technical Fellowships and BAF programmes processed between 2017-2020, disaggregated by awarded, rejected and those pending a final decision. Rejected applications include those applications rejected for quality and ineligible applications.

Five applications were made to the Bourses pour l'Afrique Francophone (BAF) sub-programme, all of which were still pending a final decision at the end of 2020. In addition, five BAF applications pending review at the end of 2019 were subsequently awarded in 2020, resulting in a total of five BAF fellowships awarded in 2020 (marked by two asterisks in the appendices). For reference, 10 fellowships were awarded to the Francophone Africa region in 2017, with nine each in 2018 and 2019.

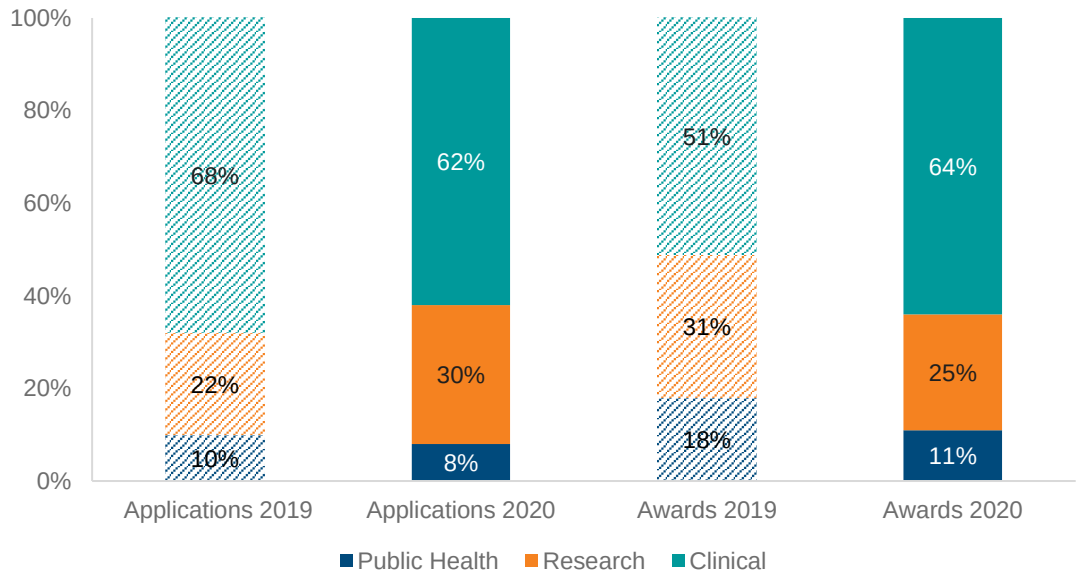
With regards to the proportion of applications and awards in each topic, Graph 2 illustrates that the numbers were relatively stable compared to 2019 with regards to the percentage of applications in the public health, research and clinical topics, with a slight increase in research applications. In terms of fellowships awarded, more clinical fellowships awarded in 2020 compared to last year, with a corresponding decrease in the percentage of fellowships awarded in the topics of public health and research.

For the names of the Fellows awarded in each topic, please refer to:

- Appendix 2: Public health Technical and BAF Fellows
- Appendix 3: Research Technical and BAF Fellows
- Appendix 4: Clinical Technical and BAF Fellows

For more details on their projects, please visit the UICC website.

Graph 2: Comparison of the percentage of applications received and Technical Fellowships awarded in 2019 and 2020 (including BAF), disaggregated by topic.



Percentage of applications and fellowships in each category: public health, research and clinical, shown from 2019 and 2020. Applications include the number of Technical Fellowships and BAF applications and do not include applications where decisions were still pending.

Regional distribution of applications, awards and host institutions in 2020

Applications

The 53 applications in 2020 came from 20 different countries (see Map 1 below), with most located in the Asia-Pacific region, including China (4), India (25), Mongolia (1), Malaysia (1), the Philippines (2), and Vietnam (1).

Map 1: Worldwide distribution of 2020 Technical Fellowship applications (including BAF)

The African region was also well represented by applications from English-speaking Nigeria (4) as well as Francophone Burkina Faso (2), Cameroon (1), DR Congo (1), Burundi (1), Togo (1) and Rwanda (1).

The only application from Latin America was from Cuba, and there were applications from Egypt (1) and Pakistan (1) from the Eastern Mediterranean region (EMRO), and from Georgia (1), Ireland (1), the United Kingdom (1) and the Ukraine (2) from the European region. No applications were received from the North American region of the United States and Canada.

Awards

The 28 fellowship awards in 2020 went to 17 different countries (see Map 2), and the Asia-Pacific region was most successful, with most fellowships being awarded to individuals from India (8) and China (3). One fellowship was awarded to individuals from each of the following countries: Malaysia, Mongolia, Nepal, the Philippines, and Vietnam. For the African region, individuals from Senegal received two awards, and Burkina Faso, Morocco and Rwanda received one each.

For Europe, two individuals from Ukraine received awards and those from Georgia, Croatia, and the United Kingdom received one each and the Latin America region received two fellowships, one to Brazil and one to Cuba. To note, the fellowships awarded in 2020 included those submitted to the 2019 call that were still pending when it closed and were subsequently awarded in 2020, therefore these fellowships are not part of the 2020 applications shown in Map 1.

Of note, 32% of awarded Fellows work at UICC member organisations located in China, Georgia, India, Malaysia, Nepal, Rwanda and Senegal (marked by an asterisk in the appendices). This represents an increase in the proportion of awards going to UICC member organisation compared to 2019, where the proportion was 25%.

Map 2: Worldwide distribution of 2020 Technical fellowship awards (including BAF)

Host Institutions

Most Fellows chose to visit the United States (9) and Canada (2), but Europe was also a popular choice, including institutions in France (4), Italy (1), Germany (1), the Netherlands (2), Sweden (1), Switzerland (1) and the United Kingdom (1). In addition, Japan (2), Jordan (2), and Morocco (1) and Niger (1) were all selected as host countries for fellowship visits. There were four examples of intra-regional fellowship visits, two within Europe (Georgia to Italy and Croatia to the Netherlands) and two within the Asia Pacific region (India to Japan and China to Japan). Seven host institutions are UICC member organisations in France, Jordan, Niger, Japan and the United States.

Map 3: Worldwide distribution of 2020 host institutions selected by awarded Fellows

Themed Fellowships

Prevent Cancer Foundation

Since 2016, Prevent Cancer Foundation (PCF) has supported the Technical Fellowships, with a particular focus on Fellows from low-and-middle-income countries who work on cancer prevention and early detection.

In 2020, three Technical Fellowships were supported by PCF, from Mongolia, India and Senegal. The Fellows will visit Canada, United Kingdom and Niger for projects on the pathological diagnosis of gynaecological cancer, the analysis of the immune microenvironment in breast cancer using tissue microarray and computerised image analysis techniques, and screening and management of early lesions of the uterine cervix. All three project visits were unfortunately delayed due to the pandemic and will take place in 2021.

The PCF-funded Fellows are listed in Appendix 5: Prevent Cancer Foundation Technical and BAF Fellows and previously awarded PCF fellows can be found on the PCF website.

In January 2020, Eveline Tata Mayaah, from Humanity at Heart International in Cameroon, who was awarded a Technical Fellowship in 2019, visited the Women4cancer Early Detection and Treatment UICC member organisation in Kenya. She described how she has applied newly learned skills in cervical cancer prevention to her work in Cameroon upon her return in her blog.

"The driving force behind my visit to Kenya was to facilitate access to information, support and healthcare services for people in Cameroon to enable them to lead healthier lifestyles". Eveline Tata Mayaar

Chinese Anti-Cancer Association

In 2019, as part of a broader partnership with UICC, the Chinese Anti-Cancer Association (CACA) launched a new collaborative initiative to support Technical Fellowships for cancer professionals coming from China. In 2019, nine fellowships were awarded and in 2020, and although a similar number was envisaged, travel restrictions due to the global pandemic resulted in only three candidates from China being awarded, who plan to visit host institutions in Sweden, Japan and the United States in 2021. More information about these Fellows and their projects can be found in Appendix 6: Chinese Technical Fellows.

At the end of 2019, Dr. Yubei Huang, a cancer researcher from the Tianjin Medical University Cancer Hospital and Institute, visited the International Agency for Research on Cancer (IARC) in Lyon, France for his fellowship project to study the impact of cancer patients' knowledge, mental health and belief in cancer screening on their rate of compliance to recall for diagnostic examinations after testing positive when screened. The "C-BLAST project" recruited 200,000 people from Tianjin between 2017-2020 and evaluated the effectiveness of cancer screening and recall. Dr Huang discussed with IARC experts and documented that the overall recall rate in patients screening-positive correlated with their level of education, income and awareness about cancer prevention and control. Since returning to China, he plans to start a new study with a further 300,000 participants between 2021 and 2025.

"The fellowship was not only an opportunity for my own capacity building, but also to establish a long-term cooperative relationship between IARC and my institution. The IARC experts expressed great interest in this large-scale real-world screening research project". Dr Yubei Huang

b) UICC Yamagiwa Yoshida Memorial International Study Grants (YY Study Grants)

2019 YY Study Grants

In 2019, five applicants were awarded a YY study grant that were all due to take place in 2020 (see Appendix 7: 2019 YY Study Grant Fellows). They came from Argentina, United States, Italy, India and Mongolia, and planned to visit host organisations in United States, China, Hungary and Canada in 2020. As a result of international travel restrictions put in place to reduce the spread of the COVID-19 virus, only Dr Filippo Piccinini from Italy, was able to go on a YY Study Grant visit to Hungary in 2020 for his project on modelling cellular processes. Overall, the research topics were translational in nature, including studies into biomarkers of cancer progression, the development of software to analyse the effects of anti-cancer drugs, a study of the factors affecting access to cancer medicines in addition to projects optimising drug dosage and the efficacy of different cancer treatments.

2020 YY Study Grants

The 2020 YY study grant call opened in October, with the call for applications being promoted alongside the re-opening of the Technical Fellowships, and the call closed at the end of the year. Five applications were received, with successful individuals to be notified in early 2021 and will be reported upon in next year's report.

YY Study Grant Fellow publishes in *the Lancet*

In March 2020, Dr Mingyang Song, a YY Study Grant Fellow who was awarded in 2017, published the results from his project on colorectal cancer incidence and mortality in *the Lancet*.

Dr Song is an epidemiologist working on colorectal cancer at the Harvard T. H. Chan School of Public Health in Boston, USA. In 2017, he visited Prof Jonas F Ludvigsson at the Karolinska Institutet in Stockholm, Sweden for a three-month project to investigate the long-term incidence and mortality rates of patients after colorectal polyp removal. Data from national registries in Sweden including over 170,000 patients was analysed, and colorectal cancer incidence and mortality assessed in individuals diagnosed with different subtypes of colorectal polyps. Dr Song found that patients with polyps had an increased colorectal cancer incidence and mortality and that the risk increase was greater for more advanced polyps.

Song et al., 2020. Risk of colorectal cancer incidence and mortality after polypectomy: a Swedish record-linkage study. The Lancet 5 (6) 537-547

"This work would not be possible without the support of the UICC Yamagiwa-Yoshida International Memorial Study Grant. The Fellowship allowed me to visit Dr. Jonas Ludvigsson at Karolinska Institutet for data acquisition, analysis and reporting. That visit also built the pivotal basis for our continued collaboration." Dr Mingyang Song

Association of UICC Fellows

Upon the successful completion of a fellowship, Fellows are invited to join the Association of UICC Fellows (AUF). There are currently over 1,727 AUF members in 103 countries. 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 via a password restricted website.

AUF members receive information for upcoming UICC events and opportunities and receive a certificate for their completed UICC Fellowship, and only these individuals can apply for an additional UICC fellowship. In 2020, the Association of UICC Fellows welcomed 19 new members.

For new AUF members from low and middle-income countries, a benefit of joining the association includes eligibility to apply for a complimentary 12-month subscription to the official journal of UICC, the International Journal of Cancer (IJC).

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

6. New Initiatives

Virtual Fellowships

In early 2020, UICC outlined a series of key principles that underpinned its response to the coronavirus pandemic, including:

1. As a global health organisation, we should not participate in, nor encourage face-to-face meetings. In all our activities, we should work to reduce public health risk and not add to it.

2. As a membership organisation, we should focus our attention on helping UICC members through one of the most difficult times faced by the health community.

Therefore, as noted earlier in the report, the Technical Fellowships programme was temporarily closed in mid-April for a period of six months. However, in order to continue to provide support to UICC members and allow for the continued transfer and exchange of key skills and knowledge in cancer control at a time when it was perhaps most needed, the Virtual Fellowships were launched for UICC members in June 2020.

The Virtual Fellowships are an alternative to the in-person learning experience provided by UICC's Fellowships. They consist of a minimum of four one-hour video calls with an expert in cancer control, allowing Fellows to ask key questions and receive tailored and actionable advice. This opportunity is open to cancer professionals (public health workers, clinicians, nurses, or researchers) who are employed by a UICC member organisation and who have at least five years' experience in cancer control.

One notable difference between the Technical Fellowships and the Virtual Fellowships is the requirement to identify a host institution. For the Virtual Fellowships, as part of the service offered to UICC members, UICC aims to identify a potential expert, facilitate the connection between the two individuals, and coordinates the subsequent video calls. In addition, applications in English, French and Spanish are supported.

17 applications for a Virtual Fellowship were received by the end of 2020 from UICC members, Applications were received from 12 different organisations situated in seven countries (see Map 4 below) spanning the Asia Pacific, Europe, Africa, Latin America and Eastern Mediterranean regions.

Map 4: Worldwide distribution of 2020 Virtual Fellowship applicants

Topics covered by the Virtual Fellowships included: cancer data analysis; cancer prevention and education; medical oncology; dealing with cancer treatment during the COVID-19 pandemic and psycho-oncology patient support. The following two case studies of the Virtual Fellows who completed their fellowships in 2020 provide an example of the value and opportunity presented by the Virtual Fellowships (Appendix 8: 2020 Virtual Fellows).

Population-based cancer registry data trend analysis in Northeast India

With a population of 45 million people, India's north-eastern region includes the states with the highest cancer burden in the country in terms of age-standardised mortality and incidence. Cancers of the stomach, oesophagus, hypopharynx, gallbladder, lung, and breast are the most prevalent and increased tobacco use, the eating of smoked and dried fish or meat, in addition to a lack of quality health-care facilities are thought to be contributing factors to the increased relative number of disability-associated life years (DALYs) in this region.

Manoj Kalita is a statistician working at the Kamrup metropolitan district population-based cancer registry based at the Dr. B. Borooah Cancer Institute, a UICC member organisation located in the north-eastern state of Assam. He was the first candidate to apply for a UICC Virtual Fellowship in July 2020, with the goal of gaining expert knowledge in the analysis of cancer data trends.

"Knowing what to measure is fundamental, but how this should be done is just as important". Manoj Kalita

Through his Virtual Fellowship, Manoj was connected with Dr. Freddie Bray, Head of the Section of Cancer Surveillance at International Agency for Research on Cancer in Lyon, France. He coordinates the Global Cancer Observatory and the Global Initiative for Cancer Registry Development and has published highly cited papers describing the global cancer burden. After an introductory session, a subsequent three sessions were held, providing the opportunity to discuss Manoj's work in detail, to address key questions including the best approaches to best tackle the impact of the COVID-19 pandemic on cancer registration, and how to analyse data trends. During their discussion on the high incidence, mortality and low survival rates in the north-eastern region, Freddie provided valuable insights on how to perform epidemiological studies on cancer registration data. He explained the methodologies used and the underlying calculations used for Globocan and Survcan and the concept of the mortality to incidence ratio.

Producing accurate national cancer incidence estimates is a difficult task that depends on multiple factors: the availability of high-quality cancer registry data, the use of valid and reproducible estimation methods and the representativeness of proxy datasets used for calculations. Manoj is currently preparing an analysis of trends in cancer incidence in the region based on data from the Kamrup urban cancer registry between 2007 and 2016. He is planning to write a research article on his findings. He hopes to apply for a Technical Fellowship to visit IARC, France sometime in the near future.

"This Virtual fellowship has enhanced my skills and knowledge on standard procedures involved in cancer research as well as on different aspects of cancer control activities and will help me to implement my ideas in a better way. I now understand better how to standardise data collection and analyse data and I have obtained new skills in using the "DEPPRED" software for trend analysis of our Kamrup registry data". Manoj Kalita

Raising cancer awareness in school children during the COVID-19 outbreak

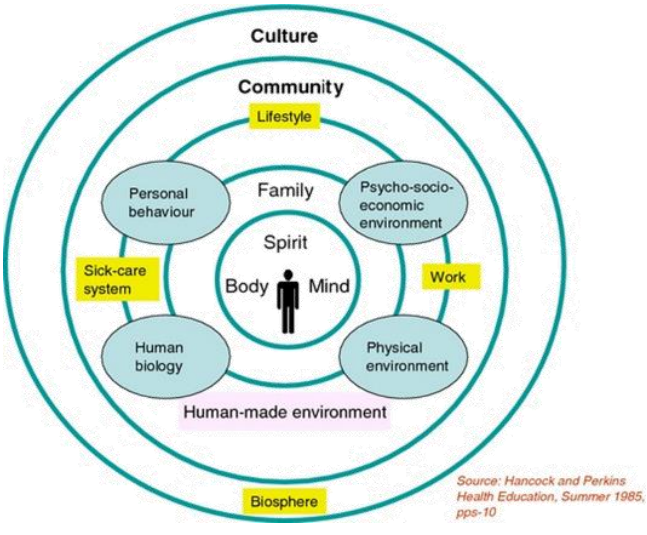
Raising awareness of cancer prevention in children and adolescents in low resource settings is important not only for them, but also as a means of disseminating this knowledge to their families and communities.

Dr. Premila Grace Devanayagam is a medical officer working at the Department of Preventive Oncology, Cancer Institute (WIA) Adyar, Chennai, a UICC member organisation in southeast India. She works with a team of social and health workers in a mobile unit that travels around rural regions raising cancer awareness and screening for oral, breast and cervical cancer. Her objective was to gain skills in teaching cancer prevention to school children, and to overcome the challenges created by the coronavirus pandemic.

"This fellowship was an eye-opener. I have learned many new methods with which to approach the school children and create cancer awareness among them. The links sent by Cristiana were very useful, and she has also sent examples of questionnaires for the children to answer. Children in countries like India don't always have the use of technologies like smartphones." Dr Premila Devanayagam

Cristiana Fonseca is a psychologist working at the Portuguese League Against Cancer in Porto, Portugal where she works on health education and cancer prevention campaigns, especially regarding tobacco and younger generations. Cristiana also serves on the UICC Board of Directors, and was first elected in 2018.

Cristiana shared her expertise with Premila in educating children and adolescents about cancer. After an introductory session where Premila presented her work and the daily challenges she faces due to the pandemic, the pair had a further three sessions together where they discussed specific strategies, methods and resources. Cristiana presented approaches on how to best inform and motivate school children about cancer prevention, with many examples, including asking them to create their own posters in art class as something for them to take home and show their families, or through creative writing competitions and role-playing, encouraging students to analyse critical situations (e.g. how to react if a member of your friend group says "either you try a cigarette or you're not our friend anymore"?). In addition, providing children with leaflets to take home about the economics of smoking addiction, or providing quizzes for biology teachers to use with their classes regarding HPV vaccination and its role in cancer prevention. Premila is now planning a baseline knowledge quiz for the children to inform future interventions and is using SMART goals to define a timetable for her interventions with schools.



"I found (the Virtual Fellowship) very useful and being virtual could be, in a way, a positive aspect as it enables us to exchange ideas and simultaneously to carry on our own work." Cristiana Fonseca.

UICC Fellowship Zoom Q&A Sessions

Building on UICC's experiences with other virtual activities in 2020, and further seeking to improve the support provided to potential fellowship applicants, virtual 'office hours' were introduced in October 2020, involving weekly Zoom sessions. The purpose of these live interactive sessions is to provide a means by which interested applicants can clarify or obtain further information about the fellowships in English or French. These sessions proved to be very popular, with 58 individuals participating between the beginning of October and the end of 2020. These included individuals from Bangladesh, Botswana, Brazil, Burkina Faso, Burundi, Cameroon, Canada, Colombia, DR Congo, Finland, India, Ivory Coast, Mali, Myanmar, Namibia, Nepal, Niger, Portugal, Senegal and Togo. Those participating have asked questions such as; how to identify and best make contact with potential host supervisors, and discussed the challenges of leaving one's job for an extended period of time.

Whilst the initiative is primarily focused on supporting individuals to apply, it also informs the further development of the Fellowships programme, providing a direct feedback mechanism from the target audience. Through the questions and issues raised, these weekly calls help to identify specific or recurrent issues that could be addressed through improved communications or revisions to the programme. This initiative will continue in 2021.

7. Monitoring and Evaluation

Monitoring and evaluation is critical to inform the future development of the Fellowships programme, and to assess its outcomes and longer-term impact on increasing the workforce capacity in cancer control and collaborations between organisations, with the ultimate vision of improving cancer prevention, treatment, and care.

To assess both the short term and longer-term impact of the fellowships, Fellows are required to complete an end of project report after the fellowship visit and host supervisors also complete an evaluation of the fellowship visit. A post one-year online survey for Fellows is conducted on a biannual basis.

The monitoring and evaluation activities will be further strengthened in the coming year to include input from home supervisors, to gain insight into the impact the fellowship visits have on the home institutions. Unfortunately, although this was initially planned for 2020, this was postponed due to the temporary closure of the programme and the needed focus on supporting UICC members in the virtual context.

The individual end of project reports provide valuable insight as to the specific benefit and value of the Fellowships. For some this may include the specific development of technical skills or knowledge that will then be implemented in the home institution within their context. For others, the focus may be more on developing their personal careers or laying the foundations for longer term collaborations between the two institutions.

Dr Naveen Padmanabhan from Apollo Cancer Institutes, Chennai, India visited Kishiwda Tokushukai Hospital, Osaka, Japan in March 2020 for his project on cytoreductive surgery, Hyperthermic Intraperitoneal chemotherapy (HIPEC), early postoperative intra peritoneal chemotherapy and extensive intra peritoneal lavage. He observed 52 surgical procedures during his fellowship visit. From the end of project report submitted by Dr Padmanabhan, it is evident that his experience has been highly beneficial for his continued professional growth and will subsequently impact his practice and the patients treated.

"It was one of the intense learning experiences in my career so far, witnessing so many complex cases in short span of time. Most surgeries required multi-visceral resections some of which I have witnessed for the first time in my surgical career. This fellowship has helped me to witness one of the advanced and highly efficient health systems in the world. I gained many new information and insights to be implemented in my daily practice." Dr Naveen Padmanabhan.

To assess long-term impact, Fellows are also contacted a year or more after their return from their fellowship visit and asked to complete an online survey.

In July 2020, 160 Fellows were surveyed to provide insights on the longer-term outcomes of their fellowship visits. Of the 104 respondents the following results were obtained, clearly indicating that not only is there a continued satisfaction and benefit of the fellowship experience itself on an individual level, but that this has a wider impact on the cancer services within their home institution, and on cancer patients.

99%

Satisfaction

Fellows would recommend going on a fellowship visit

82%

Positive impact on home institution

Fellows consider the fellowship led to an improvement in the quality of their organisation's cancer care services

87%

Long-term collaborations

Fellows are still in contact with their host supervisor a year after their fellowship

98%

Increased professional growth

Fellows considered the fellowship contributed positively to their professional growth, with 87% given greater responsibilities or a promotion as a result

84%

Positive impact on cancer patients

Fellows considered that the skills and knowledge gained during their fellowship had a positive impact (direct or indirect) on cancer patients

80%

Dissemination of skills

Fellows shared the skills and knowledge gained during their fellowship visit with ten or more colleagues

8. Conclusion

UICC's mission is to unite and support the cancer community to reduce the global cancer burden, to promote greater equity, and to ensure that cancer control continues to be a priority in the world health and development agenda.

There is an urgent need for increasing the health workforce capacity for cancer, with shortages of trained clinical oncologists apparent around the world, particularly in low-income countries, with as few as one oncologist per thousand newly diagnosed patients with cancer in 25 countries in Africa and two countries in Asia[1].

Through its Fellowships programme, UICC seeks to strengthen the human resources and the workforce required for effective cancer control, thereby improving cancer treatment and care, through the opportunity for individuals to learn new skills and knowledge and develop international collaborations.

The programme is designed with this longer-term impact in mind, with the short international visits intended to ensure that the learning opportunity only takes much needed personnel away from their home institution for a minimum of time. This is critical particularly in lower income settings where human resources for health, and cancer, are often stretched. This design also supports and helps promote the transfer of knowledge and implementation of skills acquired to their home institution following their visit.

Globally, 2020 was a challenging year, and the UICC Fellowships programmes adapted and evolved in response. Despite the pandemic necessitating the temporary closure of the TF and BAF programmes, 28 individuals were still awarded fellowships and will be able to benefit from this significant learning experience once international travel restrictions ease. New initiatives to increase the learning opportunities available and overcome travel restrictions such as the Virtual Fellowships have proved to be of interest and from the data collected so far, of value.

There continues to be a growing level of interest from the UICC membership in the Virtual Fellowships, and they will be fully incorporated into the UICC fellowship portfolio in 2021. Whilst the virtual nature of this opportunity was, and continues to be particularly relevant, during the pandemic, there is a greater openness to the value of virtual activities and in many ways, these opportunities may continue to be of interest following the pandemic. The Virtual Fellowships provide access to training and learning opportunities, which can be simultaneously implemented in their home institution, allowing immediate feedback and troubleshooting during the follow-up conversations. The virtual nature also allows for other individuals to join the discussions, thereby increasing the impact and reach of the learning shared, and perhaps greater ownership of the new techniques and lessons learning in the home institution. Of course, these virtual opportunities will not replace the value of in-person learning, and for some types of fellowships, are not an effective substitute, and for these the established Technical Fellowships and YY programmes will continue to be offered.

The stronger emphasis on public health applications will continue in 2021, and it is hoped that there will be an increase in the proportion of applicants in these topics, whilst continuing to invest in and support clinical and research-focused learning opportunities. In line with UICC priorities and global developments, fellowships on specific areas of cancer control will also be encouraged and be specifically promoted, for example, linking with the launch of the Global Strategy on cervical cancer elimination, and the development of the WHO Global Breast Cancer Initiative. As UICC continues to ensure that all regions have the access to capacity building and training opportunities, as part of its regional engagement workstream, there will be efforts to encourage applications from underserved countries such as those in parts of Latin America and Sub-Saharan Africa.

The Fellowships programmes will continue to provide individuals with the opportunity to connect and learn from global experts, either virtually, via visits to countries in the same region sparking local collaborations, or further afield with international experts. In this way, it is envisaged that the programme will continue to contribute to a stronger workforce in cancer control and international exchange between cancer organisations.

[1] Aju Mathew, 2018. Global Survey of Clinical Oncology Workforce. Journal of Global Oncology 2018:4, 1-12

9. Appendices

Appendix 1: Technical Fellowships, BAF and YY Study Grant review committee members

The UICC has recruited a community of over 800 expert international reviewers who generously contribute their expertise to ensure the high-level peer review of applications whilst taking into account the international cross-cultural nature of the UICC Fellowship programmes.

UICC would like to thank the following international review committee members who work in conjunction with the Fellowships Programme Chairs to support us in evaluating fellowship applications to the different programmes within the UICC Fellowship Portfolio.

YY Study Grants (YY) Review Committee

Reviewer	Institution	Country
Dotto, Paolo	Lausanne University	Switzerland
Honoki, Kanya	Nara Medical University Japan	Japan
McIntosh, Jennifer	University of Melbourne	Australia
Pietras, Kristian	Lund University	Sweden
Sadaie, Mahito	Tokyo University of Science	Japan

Bourse pour l'Afrique Francophone Review Committee

Reviewer	Institution	Country
Aboubacar, Bambara	Centre Hospitalier Universitaire Yalgado Ouédraogo	Burkina Faso
Bell Mbassi Ndocko, Esther Dina	Bonassama District Hospital	Cameroon
Henry-Amar, Michel	Centre François Baclesse	France
Issimouha, Dille	National Hospital of Niamey	Niger
Marcel Dieu-Donné, Egue	Faculty of Health Sciences Cotonou	Benin
Miralbell, Raymond	Hôpitaux Universitaires Genève (HUG)	Switzerland

Technical Fellowships Review Committee

Reviewer	Institution	Country
Abramson, David	Memorial Sloan-Kettering Cancer Center	United States
Agrawal, Sanjit	Tata Medical Centre	India
Akhmedov, Mobil	N.N. Blokhin Russian Cancer Research Centre	Russian Federation
Aladashvili, Archil	National Cancer Centre of Georgia	Georgia
Ali, Zipporah	Kenya Hospices and Palliative Care Association	Kenya
Anabtawi, Iyad	King Hussein Cancer Centre	Jordan
Annamalai, Gopiraj	Government Arignar Anna Memorial Cancer Hospital & Research Institute	India
Avvedimento, Enrico Vittorio	Università degli Studi di Napoli Federico II	Italy
Basu Achari, Rimpa	Tata Medical Center	India
Bhatt, Aditi	Zydus Hospital	India
Bhuyan Chidananda	Dr. B. Borooah Cancer Institute	India
Bopche, Tushar	Gujarat Cancer and Research Institute	India
Botha, Hennie	Stellenbosch University	South Africa
Cabanes, Anna	Global Focus on Cancer	United States
Cira, Mishka	Center for Global Health at National Cancer Institute (NCI)	United States
Cuzick, Jack	Wolfson Institute of Preventive Medicine	United Kingdom
De Gruijl, Frank Ronald	Leids Universitair Medisch Centrum	Netherlands
de Reijke, Theo	Amsterdam Academic Medical Center	Netherlands
Dimofte, Mihail-Gabriel	University of Medicine and Pharmacy "Gr.T. Popa"	Romania
Edhemovic, Ibrahim	Institute of Oncology Ljubljana	Slovenia
Esiashvili, Natia	Emory University	United States
Ganesh, Kadirampatti Mani	Kidwai Memorial Institute of Oncology	India

Reviewer	Institution	Country
Ghosh Dastidar, Aloke	Institute of Post Graduate Medical Education and Research	India
Gospodarowicz, Mary	Princess Margaret Cancer Centre	Canada
Grigorieva, Elvira	Institute of Molecular Biology and Biophysics (IMBB)	Russian Federation
Hefnawy, Ahmed	Assiut University	Egypt
Hovhannisyan, Ruben	Yerevan State Medical University	Armenia
Hsiaoju, Lee	Perelman School of Medicine	United States
Khader, Jamal	King Hussein Cancer Foundation	Jordan
Kumar, Rakesh	All India Institute of Medical Sciences	India
Kumar, Shaleen	Sanjay Gandhi Postgraduate Institute of Medical Sciences India	India
Kustanovich, Anatoli	Sharett Oncology Institute of Hadassah Hebrew University Medical Centre	Israel
Kuten, Abraham	Israel Cancer Association	Israel
Leinster, Samuel	University of East Anglia	United Kingdom
Loh, Siew Yim	University of Malaya	Malaysia
Mittal, Bhagwant Rai	Mittal, Bhagwant Rai Postgraduate Institute of Medical Education and Research	India
Morpurgo, Emilio	Azienda ULSS	Italy
Munjal, Kavita	Sri Aurobindo Institute of Medical Sciences	India
Nayak, Sonali	Homi Bhabha Cancer Hospital & Research Centre	India
Piccinini, Filippo	Istituto Scientifico Romagnolo per lo Studio e la Cura dei Tumori	Italy
Qaddoumi, Ibrahim	St. Jude's Children's Research Hospital	United States
Rao, Jianyu	University of Southern California	United States
Rau, Beate	Charité Universitätsmedizin Berlin	Germany
Saeed, Shabana	Pakistan Institute of Engineering & Applied Sciences	Pakistan

Reviewer	Institution	Country
Shaha, Ashok	Memorial Sloan Kettering Cancer Center	United States
Shaheen, Haitham	Children's Cancer Hospital Egypt	Egypt
Sharma, Raj Govind	S.M.S Medical College	India
Sharma, Sanjiv	Manipal Hospitals	India
Sinha, Bimal kumar	Grande International Hospital	Nepal
Smeele, Ludwig E	Netherlands Cancer Institute	Netherlands
Solomon, Monica	Manipal College of Dental Sciences	India
Sood, Ashwani	Regional Cancer Centre Nuclear Medicine Centre	India
Tiwari, Amit	University of Toledo Health Science Campus	United States
Toran, KC	Nepal Mediciti Hospital	Nepal
Varadi, Timea	University of Debrecen	Hungary
Vilbert Pereira, Maysa	Toronto University Hospital	Canada
Vodicka, Pavel	Czech Academy of Sciences	Czech Republic
Yannoukakos, Drakoulis	National Center for Scientific Research Demokritos	Greece
Yu, Jiangyuan	Peking University Cancer Hospital & Institute/Beijing Cancer Hospital	China

Appendix 2: Public health Technical and BAF Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Maria Stassiuk	National Children's Specialized Hospital "OKHMATDYT" Ministry of Health of Ukraine	**Ukraine**	King Hussein Cancer Center*	**Jordan**	Enhancing Radiological Diagnosis and Co-registering different scan in the Radiotherapy Management and follow up of pediatric tumours
Liudmyla Vintsevych	National Children's Specialized Hospital "OKHMATDYT" Ministry of Health of Ukraine	**Ukraine**	King Hussein Cancer Center*	**Jordan**	Gaining experience in the field of planning and treatment of pediatric cancer patient using 3DCRT
Damigou Mawuli Sambiani**	Hopital Aristide Le Dantec*, Institut Juliot-Curie	**Senegal**	SOS Cancer Niger*	**Niger**	Dépistage et prise en charge des lésions précoces du col utérin

*UICC member organisation

** BAF Fellow

Appendix 3: Research Technical and BAF Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Daniel Antunes Moreno	Fundação Pio XII - Hospital de Câncer de Barretos	**Brazil**	Brigham and Women's Hospital, Inc.	**United States**	Expression profile of immuno-oncology related genes and associations with response to temozolomide therapy in patients with glioblastoma
Tingting Li	Chinese PLA General Hospital	**China**	Karolinska Institutet	**Sweden**	Molecular mechanism of colorectal cancer
Monica Bequet	Center for Genetic Engineering and Biotechnology	**Cuba**	Institut National de la Santé et de la Recherche Médicale U970	**France**	Training on multiparametric ELISPOT based measurements for the evaluation of a novel VEGF based cancer immunotherapy.
Rana Chanchal	King George's Medical University	**India**	University of Nottingham	**United Kingdom**	Analysis of Immune microenvironment in Breast cancer by utilizing Tissue microarray and Computerized Image Analysis techniques.
Prashanth Giridhar	All India Institute of Medical Sciences	**India**	Mayo Clinic	**United States**	Evaluation of change in blood levels of tumour specific antigens after hypofractionated radiation in head and neck carcinoma
Antoniana Batsivari	The Francis Crick Institute	**United Kingdom**	Stanford University School of Medicine	**United States**	Deep phenotyping of the human bone marrow microenvironment in acute myeloid leukaemia by CODEX highly multiplexed microscopy
Thanh Xuan Le	Military Central hospital 108	**Viet Nam**	Stony Brook University	**United States**	A Role for Aristolochic Acid in Cancer Etiology in Viet Nam

*UICC member organisation

** BAF Fellow

Appendix 4: Clinical Technical and BAF Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Anette Nikièma**	Centre Medical avec Antenne Chirurgical Schiphra	**Burkina Faso**	Centre Hospitalier Universitaire de Bordeaux - Hopital Saint André	**France**	Stage de formation pratique en soins palliatifs
Jun Hu	Tianjin Medical University Cancer Institute and Hospital*	**China**	National Cancer Center, Japan*	**Japan**	Clinical observation of Nation Cancer Center of Japan (NCCJ)
Yibao Zhang	Peking University Cancer Hospital & Institute/Beijing Cancer Hospital*	**China**	Yale University	**United States**	Big data driven decision support system for precision radiotherapy
Marko Bebek	University Hospital Center Zagreb	**Croatia**	Radboud University Nijmegen Medical Centre	**Netherlands**	Reducing toxicity through advanced radiotherapy prostate cancer treatment planning
Simon Kitiashvili	Tbilisi State Medical University*	**Georgia**	University of Padova	**Italy**	Minimally invasive approach on colorectal cancer specimen - TME and CME
Muddasir Abrar Bhati	Tata Memorial Centre	**India**	Universitats medizin der Johannes Gutenberg Universitat Mainz	**Germany**	Implant-based rehabilitation of maxillary and mandibular defects post oral cancer surgery.
Aditi Chaturvedi	Max Institute of Cancer Care	**India**	Memorial Sloan Kettering Cancer Center*	**United States**	Understanding nuances of breast cancer surgical management and improving outcomes-Clinical Observership
Seetharama, Madhusudhan Kumble	All India Institute of Medical Sciences	**India**	University of Texas M.D. Anderson Cancer Center*	**United States**	Learning advanced image guided therapies in hepatocellular carcinoma
Naveen Padmanabhan	Apollo Hospital*	**India**	Kishiwada Tokushukai Hospital	**Japan**	Cytoreductive surgery, Hyperthermic Intraperitoneal chemotherapy, Early Postoperative Intra Peritoneal Chemotherapy and Extensive Intra Peritoneal Lavage

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Devjyoti Tripathy	LV Prasad Eye Institute	**India**	Jules-Gonin Eye Hospital	**Switzerland**	Intravitreal chemotherapy for vitreous disease in retinoblastoma - techniques and outcomes - clinical observership
Shruti Venkitachalam	Cancer research and Relief Trust	**India**	University of Pittsburgh Medical Center	**United States**	Endoscopic skull base surgery in management of Head and Neck cancers: Training, assimilation, practice and eventual dissemination in an Indian setup.
Nirmala Bhoo Pathy	University of Malaya*	**Malaysia**	Institut national de la santé et de la recherche médicale (Inserm)	**France**	Clinical Trials in Cardio-Oncology Fellowship
Anarkhuu Bold-Erdene	National Cancer Center of Mongolia	**Mongolia**	BC Cancer, part of the Provincial Health Services Authority	**Canada**	Pathological diagnosis of gynecological cancer
Samia Arifi**	Hassan II University Hospital	**Morocco**	Institut Curie*	**France**	Prise en charge des sarcomes osseux de l'adulte, adulte jeune et adolescent.
Ranjana Badgami	Nepal cancer Hospital and Research Center*	**Nepal**	VU University Medical Center Amsterdam	**Netherlands**	Developing clinical skills in Stereotactic Radiotherapy for clinical implication in Nepal
Frederic Ivan Leong Ting	Dr. Pablo O. Torre Memorial Hospital	**Philippines**	Ohio Health Foundation	**United States**	Establishing a Palliative Care System that Provides Palliative and Supportive Care to both In-hospital and Home-Bound Patients
Raissa Teteli**	Rwanda Palliative Care & Hospice Organisation*	**Rwanda**	CHU Sainte-Justine	**Canada**	Intégration des soins palliatifs pédiatriques dans la prise en charge des enfants cancéreux dans la communauté au Rwanda
Papa Massamba Diéne**	Hopital Aristide Le Dantec*, Institut Juliot-Curie	**Senegal**	National Institute of Oncology, Rabat	**Morocco**	Formation en Curiethérapie dans les cancers gynécologiques

*UICC member organisation

** BAF Fellow

Appendix 5: Prevent Cancer Foundation Technical and BAF Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Anarkhuu Bold-Erdene	National Cancer Center of Mongolia	**Mongolia**	BC Cancer	**Canada**	Pathological diagnosis of gynecological cancer
Damigou Sambiani**	Hopital Aristide Le Dantec*, Institut Juliot-Curie	**Senegal**	SOS Cancer Niger*	**Niger**	Dépistage et prise en charge des lésions précoces du col utérin
Rana Chanchal	King George's Medical University, Lucknow	**India**	University of Nottingham	**United Kingdom**	Analysis of Immune microenvironment in Breast cancer by utilizing Tissue microarray and Computerized Image Analysis techniques.

*UICC member organisation

** BAF Fellow

Appendix 6: Chinese Technical Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Jun Hu	Tianjin Medical University Cancer Institute and Hospital*	**China**	National Cancer Center Japan*	**Japan**	Clinical observation of National Cancer Center of Japan (NCCJ)
Tingting Li	Chinese PLA General Hospital	**China**	Karolinska Institutet	**Sweden**	Molecular mechanism of colorectal cancer
Yibao Zhang	Peking University Cancer Hospital & Institute/Beijing Cancer Hospital*	**China**	Yale University	**United States**	Big data driven decision support system for precision radiotherapy

*UICC member organisation

Appendix 7: 2019 YY Study Grant Fellows

Fellow	Fellow's Institution	Fellow's Country	Host Institution	Host Country	Fellowship Title
Natalia Fernandez	Universidad de Buenos Aires	**Argentina**	University of Colorado Anschutz Medical Campus	**United States**	Contribution of androgen receptor and RUNX1 in triple negative breast cancer progression
Minu Singh	Post Graduate Institute of Medical Education & Research	**India**	St. Jude Children's Research Hospital*	**United States**	Determination of DNA-TGN levels in blood leucocytes of paediatric ALL patients for dose adjustments of 6-MP
Filippo Piccinini	Istituto Scientifico Romagnolo per lo Studio e la Cura dei Tumori	**Italy**	Biological Research Centre	**Hungary**	Continuous biology: Regression Plane tool for modelling cellular processes beyond phenotypic classification
Uranchimeg Tsegmed	National Cancer Center of Mongolia	**Mongolia**	McMaster University	**Canada**	Population based comparison of non-surgical locally ablative therapies for hepatocellular carcinoma
Alessandra Ferrario	Harvard Medical School	**United States**	Peking University	**China**	Expanding access to cancer medicines on the path to universal health coverage

*UICC member organisation

Appendix 8: 2020 Virtual Fellows

Virtual Fellowships completed in 2020.

Fellow	Fellow's Institution	Fellow's Country	Expert's Institution	Expert's Country	Fellowship Title
Manoj Kalita	Dr. B Borooah Cancer Institute*	**India**	International Agency for Research on Cancer (IARC)	**France**	Population-based cancer registry data trend analysis in Northeast India
Premila Devanayagam	Cancer Institute (WIA)*	**India**	Portuguese League Against Cancer Northern Branch*	**Portugal**	Raising cancer awareness in school children during the COVID-19 outbreak

*UICC member organisation

Union for International Cancer Control

31-33 Avenue Giuseppe Motta,
1202 Geneva, Switzerland

T. +41 (0)22 809 1811 F. +41 (0)22 809 1810
E. info@uicc.org www.uicc.org