

International Agency for Research on Cancer



**Scientific Council
Fifty-sixth Session**

**SC/56/7
11/12/2019**

*Lyon, 5–7 February 2020
Auditorium*

BIENNIAL REPORT ON IARC EDUCATION AND TRAINING ACTIVITIES

**Education and Training Group (ETR)
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Lyon, December 2019

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A. Introduction and structure

1. Education and training in cancer research is one of the statutory functions of the Agency. For five decades, IARC's Education and Training programme has made a substantial contribution to the development of capacity building for cancer research in many countries with special emphasis on low- and middle-income countries (LMICs), through the training of cancer researchers, in particular in the fields of cancer epidemiology and mechanisms of carcinogenesis.
2. The ETR Group was established by the former Director in 2010 in order to enhance strategic developments in capacity building for cancer research and to create a focal point for all related activities across the Agency. A new professional post was created to lead the Group.
3. ETR is under the direction of an Education and Training Officer, with two Senior Programme Assistants managing the fellowship and courses programmes, with support from a Group Secretary and in close collaboration with the Scientific Fellowship Responsible Officer, Scientific Directors of the Summer School modules, as well as all colleagues supervising Early Career Scientists and/or organizing courses. In October 2017, following the retirement of the Head of the Laboratory Services and Biobank (LSB), a project assistant moved from LSB to ETR to work specifically on an EU-funded project aiming at building biobanking capacity. This position has been maintained on extrabudgetary resources to develop eLearning activities. In 2018, Dr R. Saracci, Senior Visiting Scientist, contributed to the work of the Group by providing advice and support as well as setting up and conducting generic courses. The current ETR organigramme is shown in Appendix 1.
4. The ETR activities and new initiatives have followed the strategy presented and discussed during the 49th Session of the Scientific Council in January 2013 (available on the IARC Governance website, see [Document SC/49/7](#)). Driven by the research priorities and training mandate of the Agency, the strategy has guided the evolution of IARC Education and Training activities towards the increasing use of e-Learning tools, close liaison of ETR with IARC research Groups for advice and coordination, as well as developing partnerships with external organizations sharing the same dedication to capacity building in order to leverage additional support to training initiatives.
5. Suggestions from the previous review by the Scientific Council were taken into account while shaping the activities of the programme, such as, for example, to continue and expand the offer of webinars or to evaluate the outcomes of courses.
6. The following presents the key achievements of the IARC's Education and Training programme in 2018–2019.
7. It should be noted that whereas ETR oversees activities of the Agency in these matters, several initiatives are led by the research Groups.

B. IARC Research Training and Fellowship Programme

a) Objectives

8. The main objective of the Research Training and Fellowship Programme is to provide opportunities to researchers at different levels of their career (collectively referred to as Early Career and Visiting Scientists [ECVS]) to get trained at IARC in fields of research closely associated with the Agency's missions and research activities, as well as the participation in collaborative research projects. ECVS are supported either by projects funds from IARC Groups or by IARC Fellowships.

9. The specific aims of the Programme are as follows:

- To provide postdoctoral scientists, from any country, with training at IARC in those aspects of cancer research related to IARC's mission, in order to build a new generation of cancer researchers and reinforce cancer research worldwide, especially in LMICs.
- To contribute to pre-doctoral training within specific agreements with Lyon Universities or others institutions at national or international level.
- To attract top international cancer researchers to spend various periods of time contributing to the Agency's programmes and to making IARC an ideal environment for education, training and exchange.
- To develop new opportunities for further professional development for Early Career Scientists and other public health professionals in order to support and promote the development of cancer research and prevention, especially in LMICs.
- To ensure the quality of the training/hosting environment for trainees, students, postdoctoral and visiting scientists.

b) Activities and results

10. As presented in [Table 4 of Appendix 2](#), a total of 295 ECVS from 62 different countries joined IARC during the reporting period. This represents a 16.6% increase as compared to the former biennium.

• Quality of the training/hosting environment

11. With the growing demand for training opportunities at IARC, a crucial objective of the Agency has been to continue to strengthen the Programme in all its dimensions (policy, procedures, training experience), thus consolidating the quality of the training and environment.

12. ETR is responsible for all administrative procedures relating to ECVS arrival, hosting and departure from IARC. As one person's stay can be extended one or several times, the total volume of agreements handled by ETR each year (new + extensions) was approximately 200, with related relocation/administrative support. This corresponds to a 15% increase compared to the previous reporting period. Given the increasing administrative burden on ETR, a system to streamline administrative procedures through e-workflows was jointly designed/developed with the Information Technology Services (ITS) during the reporting period and will be piloted and implemented from 2020 onwards. In 2019, ECVS were added to the e-leave system of the Agency (implementation early January 2020). ETR also contributed to the design of the online HR dashboard led by ITS and with the Human Resource Office, allowing IARC Groups to get up to date information of their personnel, including ECVS.

13. ETR coordinated the revision of the second edition of the IARC Welcome Pack which was released in 2019 and provides information for those considering applying to work or study at IARC, as well as to assist those who are preparing to move to Lyon or have joined IARC recently (https://www.iarc.fr/cards_page/visitor-information/).

14. Relationships between ETR and other key contacts involved in the administration of ECVS at IARC continued to be strengthened during the reporting period. In particular, regular meetings were set up with the following stakeholders to review common issues and identify opportunities for improvement of the programme: Relocation Assistant, Human Resources Officer (HRO), Staff Physician, Director of Administration and Finance (DAF) and his Office.

15. The improvements of the terms and conditions under which ECVS work while at the Agency, summarized in the Handbook of the Programme published in November 2017, based on the recommendations of the 2016–2017 “Internal Working Group (WG) on Early Career Scientists (ECS) Supervision and Policy”, have been monitored by ETR, in close collaboration with the above-mentioned key players. Those enhancements included the possibility for ECVSs to get training appointments of two years’ duration (funding permitting), to be named on grants as co-PI (under certain circumstances as PI), and to get 16 weeks of maternity leave. Stipends of postdoctoral scientists were increased. Annual and sick leave conditions were also clarified.

16. The IARC Postdoctoral Fellowship Charter, launched in September 2011 in order to allow a more structured approach to postdoctoral training at IARC, continued to be implemented. The Charter is introduced to all Postdoctoral scientists (including IARC Fellows). Entry and exit interviews have been conducted with all postdoctoral scientists. Entrance interviews (~4–6 months after arrival) are an excellent opportunity to discuss potential issues and provide support as needed. Exit interviews allow identification of lines of improvement for the programme and/or feedback on planned activities, as described above. Based on the feedback received during those exit interviews, intermediate meetings were also offered as an additional support option. The implementation of the charter was evaluated in 2018, through the collection of quantitative and qualitative data, e.g. number of charter documents completed, interviews carried out, courses organized and attended; results of the IARC Early Career Scientist Association (ECSA) annual review survey; comments from postdoctoral scientists and IARC Group Heads; feedback from the FEL team. This work allowed to (1) confirm that the IARC Postdoctoral Charter provides a valuable set of tools that are positively perceived by the majority of stakeholders, and (2) identify areas for improvement, in particular regarding the Charter document which will be redesigned as a tool to support discussion between postdoctoral scientists and their supervisors on mutual expectations and career prospects.

17. ETR recognized that there were also ad hoc requests for support from early career scientists on non-scientific matters. Despite being able to draw on support from ETR, the Human Resources Office (HRO) and the Staff Physician, it was recognized that there would be value in having access to additional external help to provide support for conflict prevention and management. This led to the creation of the Workplace Well-being Initiative (WWIn) in the Spring 2018, to gather input from IARC personnel on how to improve well-being at IARC and to provide support in case of difficult situations (e.g. conflict, long-term sick leave, etc.). The WWIn team in addition to the above-mentioned players gets the support of an external consultant, expert in work psychology and psycho-social risk prevention. Under the impetus of the new Director, the work carried out

by the WWIn team contributed, with other related initiatives such as the Respectful Workplace Initiative or the IARC Climate Survey, to the launch in the Spring 2019 of a broader IARC-wide initiative aiming at developing and implementing an IARC Quality of Work Life Plan. The implementation of the plan is coordinated by a team with representatives of the Staff Association, ECSA, HRO, ETR and chaired by the DAF.

18. Based on the recommendations of previous reviews, additional support for career development was provided. The importance of the supervisor's guidance on the project(s), but also on career prospects was reiterated and clearly mentioned in the Handbook, as an essential element of a successful doctoral or postdoctoral experience. As part of the Supervisory, managerial and Leadership Training Plan, led by HRO in collaboration with ETR, a workshop "Career management of scientific personnel by IARC senior scientists" was organized in May 2018, targeting Group and Section Heads. Training sessions on career conversations were also offered to supervisors. A 19-hour Professional and Career Development Course was designed with ECSA and held in 2018 and 2019. To complement the latter, an intranet Career Prospects Portal site was jointly developed, providing: a list of job offers maintained by ECSA, based on information received mainly by colleagues through a generic email address; a selection of learning resources and tools to support reflection on career choices, job searches, job applications and interview skills. In addition, a "job application clinic" was piloted by ETR in 2019, consisting of individual meetings to provide feedback and guidance on job application. Finally, initial internal meetings were facilitated to design a mentoring programme that would take into account the size of the Agency and resources available.

19. As a complement to the experience and competence acquired through the scientific projects and as part of the IARC Postdoctoral Fellowship Charter, ETR continued to develop the programme of internal generic skills courses. The close collaboration with HRO was pursued within the framework of the IARC Staff Learning and Development Framework developed in 2015. Overall 40 courses were offered to ECVS in 2018 and attended by more than 150 ECVS. Online training opportunities were also offered, and since August 2018, ECVS have access to the WHO learning platform ilearn and Lynda.com (LinkedIn Learning), thus further expanding the training offer. Continuing dialogue with the ECSA has enabled the offer to be refined to address the needs of the beneficiaries of the IARC Research and Training Programme.

20. The Agency continued to support ECSA, which was created in 2013. ECSA is open to all students/postdoctoral scientists at IARC and works in collaboration with ETR to promote opportunities for training, career development, social activities, and regular dialogue between Early Career Scientists, and with ETR and IARC management. Senior scientists invited to give an IARC seminar are asked to have additional "roundtable" sessions with ECSA members. Coordination meetings have taken place between ETR and ECSA. ETR also provided financial support for some of the events organized by ECSA, such as the ECSA Scientific and Career Days successfully held every year since 2014. Since 2017, the invitation has extended to scientists from the Cancéropôle Lyon Auvergne-Rhône-Alpes to present their work to peers in the field. Testimonials can be found at: <https://www.youtube.com/watch?v=d6zLkeckMoo>.

21. Relations with Universities have been further strengthened in order for IARC to be recognized as a host institute for PhD and Master's students. At the local level, the links developed with two doctoral schools of Lyon University have been nurtured, to improve day-to-day

communication and potential future collaborations (i.e. recognition of IARC generic skills courses). In addition, ETR is still serving on the Administration Board of the Lyon University's Human Biology Department, on the Board of one of the doctoral schools (EDISS) and as a member of the Education Board of the "Cancerology School", entity set-up by the Cancéropôle Lyon Auvergne-Rhône-Alpes, to coordinate the efforts of relevant stakeholders at the regional level. This led, for example, to a partnership to set up the course "Nextflow: reproducible and portable bioinformatics data analyses" held at IARC in September 2019. At the international level, agreements including training of students and/or Early Career Scientists at IARC have been signed with the following entities: University of Copenhagen, Denmark; Danish Cancer Society, Denmark; Charles University, Prague, Czech Republic; Jiao Tong University, Shanghai, China; African Academy of Sciences, Nairobi, Kenya.

- **IARC Postdoctoral Fellowships**

22. As presented in [Table 1 of Appendix 2](#), the Agency awarded seven Fellowship extensions in 2018, funded exclusively by the IARC regular budget. No new Fellowship were awarded that year as the Call 2017 was suspended due to budgetary constraints.

23. In order to maintain an effective programme while pursuing alternative funding, the Agency restricted the award of IARC Fellowships to candidates from LMICs. This measure is of particular importance as the focus on LMICs is central to the mission of IARC, especially regarding education and training. It is important to note that although the majority of postdoctoral scientists at the Agency are supported by funds from competitive grants (37/52 as at 1 December 2019 who did not initially come through an IARC Postdoctoral Fellowship), 31 of these are from high income countries (84.%).

24. This led to the award of six new Fellows from six LMICs in 2019, funded on the regular budget. These awards were made out of 92 applications, 64 of which were eligible to be considered for support.

25. Fund raising efforts initiated in previous years started to pay off and one additional Postdoctoral Fellowship from a LMIC could be awarded in 2019, thanks to the financial support of the Terry Fox Foundation.

26. In 2018–2019, modest research return Grants of €10 000 were also awarded to six Fellows from LMICs, contributing to establish their research activity in their own country.

27. A survey was carried out in April 2019, targeting the 28 Fellows supported by the second COFUND grant from the European Commission covering the period 2013–2019. Around 90% of Fellows completed an online questionnaire. Around 80% of respondent Fellows are now working in the public sector. Nearly three quarters are still active in cancer research. A quarter of them are managing their own group. The Fellows from LMICs who benefited from a Return Grant indicated that this benefited their career as well as their institution (promotion, related funding, continuation of the project initiated at IARC, etc.). About 65% of Fellows continued to work with IARC at the end of their fellowship. More than 95% of Fellows considered the Fellowship to be either decisive (68%) or helpful (28%) for their career (the other items being "minimal" 4% or "adverse" 0%). The areas of their fellowship training and experience that had the most impact on their career were the multi-disciplinary and multi-cultural scientific environment, the opportunities for international collaborations, the fact that IARC is a UN/WHO organization, and

their collaborators (inside and outside IARC). Although of small scale, the results were consistent with data collected in 2012, 2015 and 2017, documenting outcomes of the IARC Fellowship Programme as a fantastic opportunity for early career cancer researchers to assemble complementary skills in preparation for a high-level scientific career, contributing to the production of evidence that may lead to the adoption of cancer prevention and control measures.

28. As described above, in view of IARC's ineligibility to apply for EC MSCA COFUND calls under the H2020 framework (as reported in previous years) and IARC budgetary constraints, the call for IARC Postdoctoral Fellowships was suspended in 2017 and no new fellowship was awarded in 2018 (only extensions). Maintaining the same level of funding as previous years is critical for the IARC Fellowships Programme in order to keep on training future generations of cancer researchers, in particular from LMICs. In collaboration with the Resource mobilization and grant Office, fund raising efforts were intensified in 2018 and 2019. This led in 2019 to a new partnership with the Terry Fox Foundation, which allowed the support of an additional Fellow that year, as reported above. In addition, discussions with Children with Cancer UK, the St Baldrick's Foundation and the Mary Kay Foundation are ongoing to contribute to IARC postdoctoral fellowships.

29. The Scientific Council members are kindly requested to share their experience so that ETR can explore additional potential funding support avenues for IARC Postdoctoral Fellowships.

- **IARC Senior Scientists Award**

30. Senior Visiting Scientist Fellowships were awarded to two scientists in 2018–2019, as detailed in [Table 2 of Appendix 2](#). These awards were made from a total of 17 applications, 10 of which were eligible to be considered for support. Beyond the development of collaborative research projects, the Senior Visiting Scientist Award also sometimes leads to the design and implementation of cancer control programmes. As an example, the project awarded in 2018 was aiming at paving the way to future implementation studies to evaluate the impact and practicalities of using biomarkers in lung cancer detection.

- **IARC short-term Fellowships**

31. In collaboration with the Union for International Cancer Control (UICC), the UICC-IARC Development Fellowship set up in 2012 enables a selected number of participants of the IARC Summer School to return to IARC for a period of one month for further training and collaborative work. In 2019, this fellowship was awarded to four researchers from LMICs, as detailed in [Table 3 of Appendix 2](#).

c) Conclusion and future perspectives

32. The IARC Research Training and Fellowship Programme continues to demonstrate its relevance and efficiency in providing opportunities for deserving Early Career Scientists from all around the world to acquire excellent training and experience in an exceptional multi-cultural and international environment, enhanced by the hosting of Senior Visiting Scientists.

33. In the coming years, and in addition to maintaining the programme at its current level of quality, the focus of ETR will be to:

- strengthen the links with local and international stakeholders;

- identify additional resources to maintain or expand training opportunities for Postdoctoral Fellowships;
- implement the terms contained in the new Handbook and monitor the need for any modifications;
- maintain the Generic Courses Programme for Early Career Scientists in close collaboration with HRO; and
- support the Early Career Scientist Association.

C. IARC Courses

a) Background

34. As one of its core functions, and since its inception, IARC has been holding courses globally in order to provide the opportunity to improve theoretical and practical skills of cancer investigators, with emphasis on researchers from LMICs. These initiatives have also stimulated collaborations with IARC.

35. The specific aims of the Programme are as follows:

- To bring IARC learning and training resources closer to their target audiences, by developing eLearning material and initiatives, including in various languages.
- To stimulate research in cancer by developing individual and institutional expertise in areas of IARC competence through training courses.

b) Activities and Results

• eLearning

36. The Agency recognized a key strategic opportunity to increase its reach in training in LMICs through eLearning and multi-lingual approaches. As detailed in this section of the report, an important step towards the achievement of this goal has been the setting up of the infrastructure allowing the production and dissemination of a future increased amount of online learning material. In parallel, online learning resources were produced.

37. As a complementary dissemination tool to the IARC Education and Training website redesigned in 2014 (<http://training.iarc.fr>), the IARC Education and Training Newsletter launched in 2014 continued to be issued on a biannual basis. Each edition was sent to approximately 1700 former Early Career/Visiting Scientists at IARC, as well as course participants. Newsletters were opened by over 45% of recipients and contents accessed by roughly 15% of them (which is comparable with standard open rates for newsletters).

38. ETR has contributed to the work led by the IARC Communications Group to launch the IARC Content Management System (CMS) and a new look and feel for IARC websites. ETR website is one of the first websites that has been migrated into the IARC CMS and aligned to the new look and feel. The redesigned ETR website was launched in December 2019. The IARC Education and Training website itself was complemented by the development of the IARC Learning Portal described below.

39. Building on the learning management system set-up in 2016, allowing the design and deployment of online spaces for course participants to have access to practical information and

learning resources before, during and after a training event (<http://elearning.iarc.fr>), as well as from the Biobank Learning platform developed in the frame of the B3Africa project (cf. below <http://biobanklearning.iarc.fr/>), ETR and ITS developed a new infrastructure, the IARC Learning Portal (<http://learning.iarc.fr>). The Portal has a revamped design and extended functionalities (easily searchable repositories of resources, centralized user management, decentralized content management, enhanced technical and financial accessibility). The new IARC Learning portal was launched in November 2019, featuring two thematic platforms ready for registration:

- IARC Learning/ Biobanks: self-learning resources for biobank-based research professionals;
- IARC Learning/ Cancer Prevention and Early Detection: resources for research and health professionals in cancer prevention and early detection.

40. Usage data were collected for the Biobanking Platform. Between its pilot-test at the end of September 2018 in the frame of the B3Africa project and its migration into the IARC Learning portal end October 2019, the platform attracted 21 281 visitors, generating 89 542 hits. IP addresses of visitors are from 147 countries. The platform now counts 101 registered users (not including IARC staff).

41. Four more thematic platforms are under development: World Cancer Report, Cancer Surveillance, IARC Summer School, and Human Exposome Assessment Platform (HEAP cf. below).

42. The IARC Learning Portal also provides a direct link to the IARC WebTV (<http://video.iarc.fr>), which was developed, based on the video management system that the Agency set-up during the previous reporting period. The WebTV currently comprises six channels: Media communication, IARC Seminars, IARC Summer School, Cancer Early Detection and Prevention, Cancer Surveillance, Biobanking. Since 2017, a coordination between the IARC Seminar Committee, ITS and ETR was set-up to ensure that IARC monthly seminars were recorded and published. Some of the courses were also recorded, such as the IARC Summer School 2019 <https://video.iarc.fr/channels/SummerSchool2019/>. During the reporting period, videos hosted within the WebTV attracted all together over one million visits, corresponding to over 1500 visits per day. The website of the IARC Screening Group (screening.iarc.fr) is the internal most frequent referral source, followed by the IARC website (iarc.fr).

43. The former learning management system mentioned above (<http://elearning.iarc.fr>) has still been used during this transition period, with around ten learning spaces set-up by ETR, to support courses on cancer epidemiology, cervical cancer screening, cancer prevention or cancer registration. The system will be progressively archived as the IARC Learning portal and thematic platforms develop.

44. As commented during the 53rd Scientific Council session in January 2017, webinars are a powerful way to reach out to a diversified audience. Building on former internal experience, webinar series were organized, targeting an increasing number of professionals worldwide. While ITS is in charge of administrating the webinar system (GoToWebinar until August 2019 and Zoom since then), ETR is the focal point for the organization of events and provides advice and support Agency-wide. In addition to the last event of the B3Africa series (cf. below), webinars were organized on the following topics: SURVCAN-3 in English and Spanish (Cancer Surveillance

Section); GloboDiet (Nutritional Epidemiology Group), Genetic counselling (Biomarkers Group). Those events attracted over 200 researchers and public health professionals.

45. New online self-learning material was produced during the reporting period. Resources were developed, combining videos, quizzes, and questions/comments boards. A set of resources on breast cancer diagnosis and management in French was jointly developed in the Summer 2019 by the Screening Group (SCR) and ETR, in collaboration with the national oncology institute of Rabat and the Lalla Salma Foundation, Morocco. The modules were used as online material for participants to get prepared for a face-to-face course, which was redesigned by SCR to increase the time dedicated to practice (termed a “blended approach”). The same approach was followed to develop modules on cancer prevention and early detection strategies, based on the new module offered at the IARC Summer School 2017 (cf. below). Those modules, successfully tested during the first course of the China ASEA Cancer Prevention and Control Training Program “CICAMS-IARC Planning & Implementing Cancer Control Programs” that took place in September–October 2017, were updated and used in the following instances of the course in 2018 and 2019.

46. Finally, partnership initiatives set up in previous years have been nurtured to develop/deliver eLearning materials and courses. The agreement with the International Federation of Cervical Pathology and Colposcopy (IFCPC) concluded in 2016 by SCR, allowed the successful launch organization of the certifying “IFCPC-IARC Training course in Colposcopy and the prevention of Cervical Cancer”, which comprises (1) online video-based theoretical modules and exercises delivered over six months, (2) a practical hands-on clinic over several months, supervised by accredited trainers, and (3) an examination. Two instances of the course were organized during the reporting period. In addition, IARC has been involved at several levels in the planning of the WHO Academy launched in 2019 by the WHO Director-General and the President of France. In particular ETR coordinated the contribution of IARC to the WHO-wide inventory of training, took part in various technical discussion groups and coordinated the preparation of the IARC proposals for the first call that will open early 2020 to select the 10 first courses that will be developed by/for the WHO Academy.

47. In addition, with an average of approximately 1300 visitors per day to the IARC home page, a similar number of visitors to the SCR webpage (<http://screening.iarc.fr>), and more than 93 000 downloads per year of the textbook “Cancer Epidemiology: Principles and Methods” (most popular download even after two decades), eLearning resources produced by the Agency have the potential to reach an increasingly high number of professionals around the world. The use of the newly developed resources described above, will continue to be monitored in the coming years.

- **Courses**

48. Another strategic objective for the Agency has been to continue to organize training courses in areas of IARC competence, in particular targeting individuals and institutions in LMICs. As detailed in this section of the report, emphasis was put on developing new courses or expanding existing initiatives, often in partnership within research collaborating institutions and other key organizations. In parallel, the role of ETR as a focal point providing guidance and support, in particular regarding innovative approaches to training, has been strengthened.

49. In view of budget constraints, the IARC Summer School on Cancer Epidemiology was organized in Lyon in 2019 only, with the goal of improving the methodological and practical skills of cancer researchers and health professionals. The two-week “Introduction to Cancer Epidemiology” module was offered as in previous years. Based on the development of the Global Initiative for Cancer Registry development (GICR) hubs and as planned, the week dedicated to cancer registration evolved into a rotation of more specific or advanced modules. Building on the experience of the Module “Cancer Survival Methods for Cancer Registries” organized in 2015 and 2017, the cancer registry Module in 2019 was organized as a GICR train-the-trainer master class on “Data Analyses and Presentation of Cancer Registry Report”. This one-week module ran in parallel of the Module “Implementing Cancer Prevention and Early Detection” launched in 2017. Most sessions of the Summer School were recorded and posted through the IARC WebTV (<https://videos.iarc.fr/channels/SummerSchool2019/>). Some of those resources were viewed more than a thousand times between July and December 2019.

50. As detailed in [Table 5 of Appendix 2](#), the Summer School allowed the training of around 60 cancer researchers and health professionals from over 20 countries, in vast majority from LMICs. The Summer School modules have been very well received by the participants, with more than 95% of them declaring they would recommend the course to a colleague. Testimonials are available here: <https://training.iarc.fr/course-testimonials/summer-school2019/>

51. More than 50 specialized courses were organized by scientific Groups, often with external partners and held at diverse locations throughout the world (see [Table 7 of Appendix 2](#)). The majority of these courses are associated with collaborative research projects, where IARC is transferring skills needed to conduct the projects and to enable the subsequent implementation of the research findings in the countries concerned. This is for example the case of courses held in Belarus in the framework of the BELMED project led by the Section of Early Detection and Prevention (EDP)/Prevention and Implementation Group (PRI). During the reporting period, one can highlight the large amount of courses on cancer registration and cervical cancer early detection. In the area of research infrastructure and methods, and besides biobanking and epidemiology courses, new opportunities were offered in the area of metabolomics, such as for example “Metabolomics Bioinformatics in Human Health” supported by the European Molecular Biology Organization (EMBO). It is to be noted that 19 of those courses (over 35%) were fully or partly run online (i.e. webinar series, online course or blended approach as described above). With the consolidation of the IARC online training and learning platform, it is expected that the number of courses integrating eLearning in their design will further increase in the future.

52. As presented in [Table 6 of Appendix 2](#), the Summer Schools as well as IARC specialized or advanced courses allowed the training of a total of about 1700 scientists and health professionals

during the reporting period. The number of scientists and health professionals trained through IARC initiatives was comparable to the previous reporting period. This reflects IARC's sustained commitment to training, including through innovative methods and effective partnerships to meet the increasing demand for courses in LMICs.

53. As described above, several IARC research Groups are engaged in training activities through their collaborative research projects. ETR recognized an opportunity to add value to these initiatives by bringing its expertise on training design and eLearning. As a result, ETR has been involved in part of courses led by research Groups in different ways, ranging from advice/support on learning needs assessment, instructional design, organization, development/administration of online evaluation surveys (over 15 during the reporting period) and/or through the development of online spaces on the learning platform. ETR has also contributed to some of the Groups' initiatives where there is a training component embedded within a broader project and has collaborated with scientific Groups for the development and running of projects. The best example of such collaborations was the EU-funded Bridging Biobanking and Biomedical Research across Europe and Africa (B3Africa), which run until September 2018 and aimed to implement a cooperation platform and technical informatics framework for biobanks, in particular in low-resources settings (ethical and legal framework, biobank data representation, bioinformatics pipelines for sharing data and knowledge among biobanks). IARC was part of the project consortium coordinated by the Sveriges Lantbruksuniversitet, Uppsala, Sweden, with the IARC LSB and ETR leading respectively the Dissemination and Education & Training work packages. The latter included a comprehensive learning needs assessment, the design of the training plan targeting institutions which are piloting the project's tools, the organization of a webinars series and of two face-to-face courses, as well as the development of learning material. Building on the success of the project, ETR was invited to take part to a consortium coordinated by Karolinska Institute, Sweden (which was part of B3Africa) to lead the Education and Dissemination work package of a EU-funded project Human Exposome Assessment Platform (HEAP), which will start in January 2020. Other similar proposals were developed and submitted with IARC scientific groups (BMA, CSU, ENV) but not funded. Another example of such internal collaborations is the Memorandum of Agreement set up by SCR and ETR with the Cancer Hospital, Chinese Academy of Medical Sciences & Peking Union Medical College (CICAMS), to set-up a Cancer Prevention and Control Training Programme targeting professionals from ASEAN countries¹ and other Asian countries. The course was developed with a blended approach, combining a set of online video-based modules to be taken prior to a one-week face-to-face session in China comprising interactive lectures, group activities, as well as site visits demonstrating current Chinese efforts in cancer prevention and control. After the first instance successfully run in 2017, the course was organized in 2018 and 2019. In addition to coordinating the contribution of IARC in the project, ETR was in charge of developing and hosting the online modules, as well as interacting with CICAMS for the organization of the face-to-face session. The course was a success with participants highlighting the value of such a blended online/face-to-face programme to share challenges, successes and opportunities in planning and implementing effective cancer control

¹ Brunei, Cambodia, China, Indonesia, Laos People's Democratic Republic, Malaysia, Myanmar, Philippines, Singapore, Thailand, Viet Nam

programmes, as well as fostering the adoption of evidence-based strategies for cancer control in the region.

c) Conclusion and perspectives

54. During the reporting period, IARC continued to organize and successfully run initiatives that both stimulated capacity building for research on cancer globally and contributed to developing local expertise in cancer epidemiology and prevention, particularly in LMICs.

55. There have been shifts in emphasis, towards the increasing use of eLearning tools, close liaison with IARC research Groups for advice and coordination, as well as developing partnerships with external organizations sharing the same dedication to capacity building in order to leverage additional support to training initiatives.

56. In the coming years the focus of ETR will be to:

- identify resources to consolidate the IARC eLearning portal and to increase the production/publication of eLearning material in English and other languages;
- stimulate and support the organization of webinar series, for example by building on certain seminar cycles currently organized at IARC, with recorded sessions and material posted on the IARC website for free access;
- monitor the use of eLearning resources;
- identify funding resources to continue to run the IARC Summer School on a regular basis, as well as to set-up online courses expanding its target audience;
- develop more specialized and advanced modules in areas of IARC competence; and
- pursue collaboration with and support to Groups for the design, development, organization and/or evaluation of education and training materials, courses or programmes.

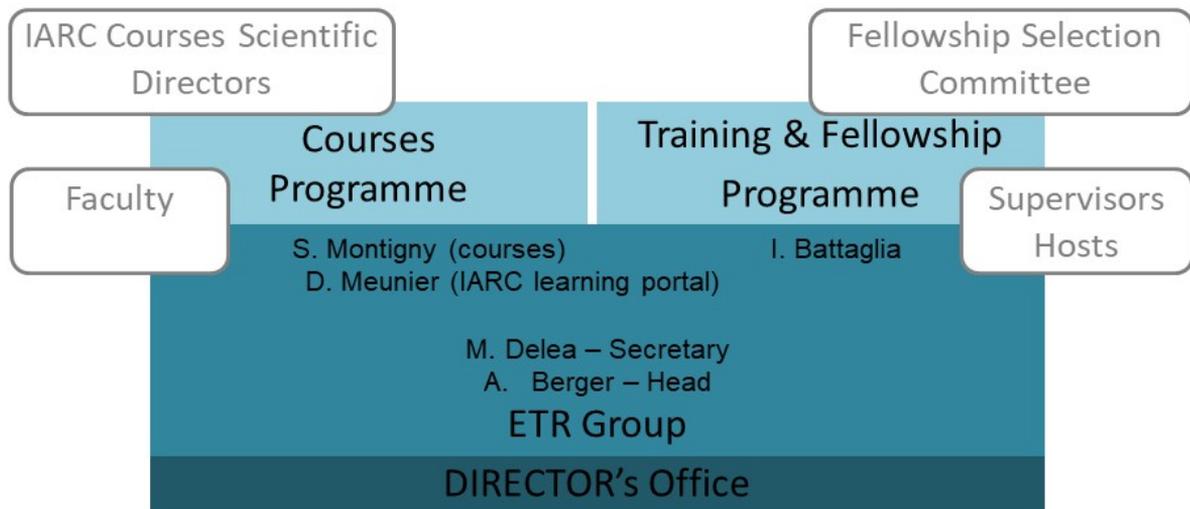
D. Questions to the Scientific Council

57. This report has described key achievements of the IARC's Education and Training programme in 2018–2019, based on the strategy presented and discussed during the 49th Session of the Scientific Council in January 2013. The Scientific Council is asked to comment on the activities and achievements of the programme as well as suggesting areas for further enhancement or which may be reduced in emphasis.

58. The maintenance of the programme and part of future developments are dependent on the mobilization of funding resources. The Scientific Council is therefore asked for advice on seeking additional resources from, for example, Participating States and Foundations, in order to finance the maintenance and expansion of Education and Training.

Appendix 1 – Structure

ETR organigramme



Appendix 2 – Key Performance Indicators and other relevant data

Table 1: IARC Fellowships 2008–2019

Year	No. of IARC Fellowships awarded*	No. Fellows from low- and middle-income countries (LMICs)
2008**	11 (6 + 5)	11
2009	8 (4 + 4)	8
2010	10 (6 + 4)	6
2011	13 (8 + 5)	5
2012	19 (12 + 7)	11
2013	18 (10 + 8)	11
2014	21 (13 + 8)	12
2015	22 (10 + 12)	13
2016	17 (7 + 10)	10
2017	14 (7 + 7)	12
2018	7 (0 + 7)	6
2019***	7 (7 + 0)	7

*Post-doctoral Fellowships (new + second year renewals), including IARC-Australia and IARC-Ireland Fellows (2011–2014)

**In 2008 and 2009, only candidates from LMICs were eligible to apply. From 2010, candidates from LMICs or with research projects benefitting to LMICs have been able to apply.

***In 2019, only candidates from LMICs were eligible to apply.

Table 2: Senior Visiting Scientist Awards, 2018–2019

Name	Institution	Project	IARC Group
Professor Torkjel Sandanger	Department of Community Medicine, Arctic University of Norway, Norway	Biomarkers of lung cancer risk and early detection	GEP
Dr Rashmi Sinha	Division of Cancer Epidemiology & Genetics, National Cancer Institute, United States of America	Developing a multi-national cohort to study the microbiome and cancer development	NEP

Table 3: UICC-IARC Development Fellowships, 2019

Year	Name	Country	Project	IARC Group
2019	Dr Maria Abriata	Argentina	Improving Cancer Surveillance in Latin America through Tailored Training and Status Analysis	CSU
2019	Dr Rongshou Zheng	China	Assessing the impact of risk factor changes and population aging on future cancer burden in China	CSU
2019	Dr Oswal Kunal	India	Evaluation of breast, cervix and oral cancer screening policies and implementation in India	SCR
2019	Dr Farah Nassar	Lebanon	DNA Methylation Patterns in Right vs Left Colon Cancer in Association with Diet in Lebanon	EGE

Table 4: Number of trainees, students, postdocs or visiting scientists, beneficiaries of the IARC Research Training and Fellowship Programme, 2018–2019, by category*

Category	Number
Studentships, of whom:	73
<i>Trainees at the pre-bachelor level</i>	22
<i>Master's students</i>	51
Continuing professional development trainees	35
Doctoral students	43
Postdoctoral scientists (including IARC Fellows)	82
Visiting Scientists	35
Senior Visiting Scientists	27
Total, all categories	295

* As of 1 December 2019

Table 5: Number of participants in the IARC Summer School 2019, by country and geographical regions (WHO Regions)

Region	Countries and number of participants	Total per Region	Total per LMICs
Africa	Algeria (2), Burkina Faso (1), Ghana (2), Kenya (1) Nigeria (1), South Africa (1), Swaziland (1), Tanzania (1), Uganda (1) (9 countries; 9 LMICs)	11	11
Americas	Argentina (2), Barbados (1) *, Bolivia (2), Brazil (1), Canada (1) *, Colombia (2), Ecuador (1), Mexico (1), Paraguay (1), Peru (1), Trinidad Tobago (1) * (11 countries; 8 LMICs)	14	11
Eastern Mediterranean	Iran (2), Lebanon (1), Morocco (1), Qatar (2) *, Saudi Arabia (1) *, Sudan (1), Turkey (1) (7 countries; 5 LMICs)	9	6
Europe	Belarus (1), Belgium (1)*, France (2)*, Germany (1)*, Spain (1)*, United Kingdom (2)*, Uzbekistan (1) (7 countries; 2 LMICs)	9	2
South-East Asia	Bhutan (1), India (5), Indonesia (1), Nepal (1), Thailand (2) (5 countries; 5 LMICs)	10	10
Western Pacific	China (4), Japan (1)*, Korea (1)* (3 countries; 1 LMIC)	6	4
Total		59	44

* High-income countries

Table 6: Courses organized by IARC 2012–2019 (including Summer School)

Year	No. courses organized	No. different countries where courses held	No. courses in LMICs	No. participants
2012	9	4	3	312
2013	12	7	6	425
2014	17	14	12	576
2015	24	14	11	647
2016*	36	23	19	1410
2017	32	16	15	1324
2018	26	14	11	763
2019	28	18	15	1083

*Note: Figures from 2016 slightly differ from those provided in the Director's report to the Governing Council ([Document GC/59/2](#)), as some updates were received by Groups in the meantime.

Table 7: Specialized and advanced courses 2018–2019

2018			
Course title	Location	Number of participants	External collaborations
Cancer Surveillance			
Basic Cancer Registration in Indonesia	Indonesia	60	
Basic Cancer Registration in Tanzania	Tanzania	21	
Basic Cancer Registration in UAE	UAE	72	
CanReg5	Thailand	60	
Childhood Cancer Registration	Côte d'Ivoire	10	
GICRNet Data Quality Train the Trainers Workshop	IARC	22	
SEER*Stat Training Workshop for the Analysis and Reporting of National Mortality Data	Trinidad and Tobago	10	
<i>SurvCan-3: Data Collection for Survival Studies: data quality & assessment for survival analysis focusing on trace back of DCO cases (Central & South American countries, Caraïbes)</i>	<i>Go-to-webinar</i>	<i>18</i>	<i>Cancer Institute (WIA)</i>
<i>SurvCan-3: Data Collection for Survival Studies: data quality & assessment for survival analysis focusing on trace back of DCO cases (India & surrounding countries)</i>	<i>Go-to-webinar</i>	<i>16</i>	<i>Cancer Institute (WIA)</i>
<i>SurvCan-3: Data Collection for Survival Studies: data quality & assessment for survival analysis (Central & South American countries, Caraïbes)</i>	<i>Go-to-webinar</i>	<i>18</i>	<i>Cancer Institute (WIA)</i>
<i>SurvCan-3: Data Collection for Survival Studies: data quality & assessment for survival analysis (India & surrounding countries)</i>	<i>Go-to-webinar</i>	<i>24</i>	<i>Cancer Institute (WIA)</i>

2018			
Course title	Location	Number of participants	External collaborations
Cancer Prevention and Early Detection			
<i>CICAMS-IARC Planning and Implementing Cancer Control Programs - 2nd edition for ASEAN Countries & China</i>	<i>China</i>	<i>42</i>	<i>Cancer Foundation of China, CICAMS</i>
<i>IFCPC-IARC online training Colposcopy and the prevention of Cervical Cancer (English) for India</i>		<i>15</i>	<i>The International Federation of Cervical Pathology and Colposcopy (IFCPC)</i>
<i>IFCPC-IARC Training course in Colposcopy and the prevention of Cervical Cancer - Objective Structured Clinical Examination (OSCE)</i>	<i>India</i>	<i>20</i>	<i>IFCPC</i>
<i>IFCPC-IARC online training Colposcopy and the prevention of Cervical Cancer (Russian/English)</i>		<i>30</i>	<i>The International Federation of Cervical Pathology and Colposcopy (IFCPC) – United Nations Population Fund - Eastern Europe Central Asia office (UNFPA-EECA)</i>
Project ESTAMPA – Bolivia Center set up (4 sessions) Project presentation, Clinical Samples collection, Colposcopy and clinical management, Laboratory Procedures	Bolivia	65 (42+5+14+4)	
Projet Care4Afrique - Côte d'Ivoire - IVA et Thermo-coagulation	Côte d'Ivoire	20	Ministère de la Santé et de l'Hygiène Publique; Institut National de Santé Publique, Abidjan, Côte d'Ivoire; Lalla Salma Foundation, Rabat, Morocco
Projet Care4Afrique - Sénégal - IVA et Thermo-coagulation (2)	Sénégal	46 (22+24)	Ministère de la Santé et de l'Action Sociale du Sénégal; Lalla Salma Foundation, Rabat, Morocco
Projet PAPRICA - Ateliers d'information et de partage «Vaccination HPV» (3)	IARC	21	
Training Course for Master Trainers in Cervical Cancer Prevention, Early Detection & Management (Participants from Morocco, Burkina Faso, Chad, Ivory Coast and Senegal (in FR))	India	23	Tata Memorial Centre Rural Cancer Project, Nargis Dutt Memorial Cancer Hospital (NDMCH), Barshi, Maharashtra, India; Lalla Salma Foundation, Rabat, Morocco

2018			
Course title	Location	Number of participants	External collaborations
Cancer Research Infrastructure and Methods			
<i>B3Africa Webinar Series: Mobile Data Collection, Part I and II</i>	<i>Go-to-webinar</i>	<i>26 (18+8)</i>	<i>International Livestock Research Institute, Kenya</i>
BELMED Workshop "Epidemiological principles (characteristics) of organized screening for breast cancer"	Belarus	32	Belarus Ministry of Health, WHO Belarus
IARC Workshop An introduction to GIS mapping using QGIS; Epidemiologic design: Case control studies; Epidemiologic study design	Zambia	40 (20+10+10)	Society for Environmental Geochemistry and Health
<i>GloboDiet Transfer of Knowledge to WHO-NCD</i>	<i>Go-to-webinar</i>	<i>3</i>	<i>WHO-NCD in Moscow</i>
Statistical Practice in Epidemiology using R	IARC	32	
ICAMA - Taller de Formación en Patología e Investigación en cáncer de mama	Mexico	17	

2019			
Course title	Location	Number of participants	External collaborations
Cancer Surveillance			
IARC/Korean NCC Summer School on Cancer Registration: Basic principles	Korea	22	Korea NCC, GICR, ETR
IARC/WHO EMRO Basic cancer registration course	Egypt	19	WHO EMRO
IARC/WHO EURO Advanced Cancer Registration Course	Moldova	24	WHO EURO, GICR
International Basic Course for Cancer Registrars	Dominican Republic	18	PAHO-Dominican Republic, Autonomous Uni of Sto Domingo, INCART (MOH Dominican Rep), GICR
Principles and Practice of Cancer Registration Course	Slovenia	50	IARC, Slovenian Cancer Registry, GICR
Site visit and Cancer Registration and CanReg Training	Peru	6	GICR, INEN
Site visit and Cancer Registration and CanReg Training	Paraguay	6	MOH Paraguay, GICR
Workshop ESMO EMOO Lung Cancer Data Collection Tool	Thailand	16	Chang Mai Cancer Registry, Singapore Cancer Registry, ESMO, GICR
Workshop on Registration of Childhood Cancer: Challenges and Opportunities	France	90	UICC
Cancer Prevention and Early Detection			
BELMED Workshop "Cervical cancer prevention and screening in the Republic of Belarus"	Belarus	27	
BELMED Workshop for radiographers "Principles of screening mammography"	Belarus	20	Breast Screening Training Centre, St. George's University Hospitals NHS, UK

2019			
Course title	Location	Number of participants	External collaborations
BELMED Workshop "Multidisciplinary Team"	Belarus	45	Oxford University, University Hospitals of Derby and Burton, Addenbrookes Hospital in Cambridge, and Nottingham University (all UK)
<i>CICAMS-IARC Planning and Implementing Cancer Control Programs – 3rd edition for ASEAN Countries & China</i>	<i>China</i>	<i>40 (incl. 3 Obs)</i>	<i>Cancer Foundation of China, CICAMS</i>
<i>Colposcopy and treatment of precancers</i>	<i>India</i>	<i>25</i>	<i>Chittaranjan National Cancer institute, Kolkata, India</i>
<i>Formation en diagnostic et prise en charge du cancer du sein (FR)</i>	<i>Morocco</i>	<i>9</i>	<i>Institut National d'Oncologie, Rabat, Maroc et la Fondation Lalla Salma, Prévention et traitement des cancers au Maroc.</i>
<i>Genetic Counselling for PRECAMA Institutions and beyond (8 webinars)</i>	<i>Webinar</i>	<i>113 19+13+14+6+17 +15+15+14)</i>	<i>Hospital Sírio-Libanês, Sao Paulo, Brazil</i>
Hands-on training on colposcopy and management of premalignant cervical lesions	India	8	GBH American Hospital and GBH Memorial Cancer Hospital Udaipur Rajasthan India
IARC/WHO-EURO Workshop on Implementation of Screening Programmes	France	46	WHO/EURO
IARC/WHO-EURO Workshop on Implementation Research in Cervical Cancer Elimination	Russia	70	WHO/EURO; N.N. Petrov National Medical Research Center of Oncology, St. Petersburg State University, Karolinska Institutet
<i>IFCPC-IARC Training course in Colposcopy and the prevention of Cervical Cancer - OSCE (Russian/English)</i>	<i>eLearning France</i>	<i>25</i>	<i>The International Federation of Cervical Pathology and Colposcopy (IFCPC)</i>
<i>IFCPC-IARC Training course in Colposcopy and the prevention of Cervical Cancer – OSCE (Spanish)</i>	<i>eLearning Colombia</i>	<i>8</i>	<i>The International Federation of Cervical Pathology and Colposcopy (IFCPC)</i>
Project ESTAMPA - Training for colposcopists and pathologists	Costa Rica	80	

2019			
Course title	Location	Number of participants	External collaborations
Projet Care4Afrique - IVA et Thermo-coagulation	Benin	27	Gouvernement de la Republique du Benin; Lalla Salma Foundation, Rabat, Morocco; Fondation Claudine Talon
<i>Training Course for Master Trainers in Cervical Cancer Prevention, Early Detection & Management (Participants from Morocco, Burkina Faso, Chad, Ivory Coast and Senegal (French))</i>	India	13	<i>Tata Memorial Centre Rural Cancer Project, Nargis Dutt Memorial Cancer Hospital (NDMCH), Barshi, Maharashtra, India; Lalla Salma Foundation, Rabat, Morocco</i>

Cancer Research Infrastructure and Methods

Cours international francophone d'épidémiologie du cancer	Morocco	20	Institut de Recherche du Cancer, Fez ; Fondation Lalla Salma
Application of Metabolomics in Human Health	South Africa	130	African Centre for Gene Technologies (ACGT)
Application of Metabolomics in Human Health (hands on)	South Africa	35	African Centre for Gene Technologies (ACGT)
EMBO Practical Course - Metabolomics Bioinformatics in Human Health	France	32	EMBO