



**School of Medicine**

**ANNUAL REPORT**

**2017–2018**

**University of Minho**



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## 1. INTRODUCTION & GENERAL OVERVIEW

The present report provides an overall view of the School of Medicine, including its Research Institute (the ICVS – Life and Health Sciences Research Institute), and the main strategies and progresses in the academic year 2017-2018. The detailed data on the scientific and pedagogical activities are presented in individual attached reports.

The mission of the School of Medicine (EM) is to *improve healthcare through education and research*. In this report, and in alignment with our Mission, we will highlight the major events and achievements of the academic year 2017-2018.

The first note is to highlight the exciting efforts of renewing the curriculum of the medical degree in which the entire community of the EM is participating. We are all aware of the ongoing changes in the practice of healthcare and their impact in medical education. To be prepared to face those challenges we are convinced that a profound shift in the way we train the workforce of the future must occur. With that in mind, in May 2016 we decided to embark on an ambitious 3-year plan to profoundly rethink and reorganize the entire medical degree (Figure 1). This represents a clear commitment to think forward on what would be the expertise needs in medicine and in healthcare of the future; and is part of our inherent culture of assessment, continuous monitoring and improvement in healthcare education. This is a multi-step process, for which a Steering Committee was appointed; at the moment we are in the middle of Phase 2b, where five working groups are planning the overall organization of the curriculum. This phase was preceded by an extensive inquiry of the multiple stakeholders, both internal and within the community, (Phase 1) and by the work produced by Concept groups (Phase 2a) that provided guidance to the following steps. This conceptual work was discussed in the annual retreat and approved by the governing bodies of the EM; it provided the guidance to the overall design of the new curriculum. These have been exciting days for the entire community, and even if nothing would change, we would have already gained the enthusiasm of reappraising the mission and the vision of the EM. Early in 2019 the work of Phase 3 will start and certainly all the details of the new curriculum will be framed in order to be scrutinized on time by the EM, the University and the national authorities.

Figure 1



Another academic year was celebrated on October 8, 2017, when the 11<sup>th</sup> class graduated. Again, this represented one of our main achievements and is certainly the result of the close permanent collaboration between students, researchers, faculty and staff, embodying the spirit of the EM. The level of preparation of our students (at least their knowledge) was again tested in the national residency selection examination; in line with previous years, the (average) performance of EM graduates was the highest in Portugal. This is certainly reassuring of the level of the training students received, and an important achievement in light of the change in the landscape of access to residency programmes in Portugal (now that a significant percentage of students does not have access to those programmes). Notwithstanding this result, we congratulate the final announcement of a new model for the selection exam where, hopefully, clinical reasoning will be much more reliably assessed. Such change, for which the EM always advocated, was also accompanied by another important governmental decision – the use of a standardization method to rank the final graduation scores (FGS) of the graduates of the distinct medical schools in Portugal. We believe that these changes will provide fairness to the process and justice to the EM’s graduates since, traditionally, they were ranked lowest due to lower absolute FGS.

One note to highlight our focus in continuous medical education and training. We believe that the social responsibility of a medical school is not confined to the graduation of its medical students. It goes beyond that point, and extends throughout medical professional activities (with stronger visibility during residency training). Thus, in close collaboration with Alumni Medicina, we kept supporting and expanding our educational portfolio for these publics. Our endeavors have been well accepted and a large number of residents and young specialists have benefited from our offer of training courses. This effort is recognized by the national authorities, but also by other institutions that promote similar initiatives of training in less-privileged regions of the globe, with whom we started to cooperate to establish specific programs.

The External Advisory Committee visited the EM this academic year. This is always a unique opportunity to foster reflection and to obtain feedback from international experts. Their report was very positive (Annex I).

One of the suggestions for improvement made by the Accreditation Agency Committee for the Medical Degree during the site visit in December 2016 pertained with the need to increase awareness of the EM image/brand. Following that suggestion, during the last academic year, we implemented a study of image/brand in order to get data to inform us about necessary actions. Preliminary data was presented to the EM community in July 2018 and, while waiting for final results, some internal discussion started.

The EM has always paid attention to quality of education of its community members and working environment. Several progresses have been made to improve the conditions of the facilities, and to promote educational actions of value to the faculty, non-faculty staff and researchers. Additionally, the EM stimulates its staff and researchers to develop actions/projects that detect and support students in need and/or at risk, and to develop research on topics related to well-being of students. Data resulting from these actions/research is used to develop preventive/corrective actions as well as publishing scientific reports. During 2017, we decided to prioritize this topic and greater efforts were made to obtain further information on our educational and working environment, and to improve it further. Besides our regular initiatives, we acquired external consultancy services to assess the quality of the working environment (a summary of the results is presented in Annex II) and an intervention to promote literacy and awareness of the relevance of mental health amongst the EM community. These efforts were complemented by other initiatives, in collaboration and in alignment with students that were very well perceived and improved the general satisfaction with the living environment in the EM ecosystem.

The horizon of healthcare practice is changing, and a significant part of that shift relates to the use of technology. In 2017-2018 a strong investment was made: the EM decided that that the use of portable ultrasound should be routine and incorporated in the decision algorithms learned by the students. We acquired a significant number (50) of portable ultrasound devices, and created several workshops for students and faculty to become familiar with the use of such devices for point-of-care ultrasound. With such initiative we created a faculty and a platform that will guide the progression of the use of this technique throughout the curriculum, but we also strengthened the links with the affiliated healthcare institutions (in particular, clinical tutors and supervisors). The widespread use of the Up-to-Date® platform in the entire medical school was initiated and very well perceived by the community.

A note, to also highlight the significant investment done in the renewal of the ICVS research infrastructures, namely through a continued investment in the Animal House, and in the acquisition of new microscopes, ultrasound and MRI equipment, as well as the launch of the Phase 1 clinical trial unit (2CA-Braga). These investments certainly represent added-value to the existing technical platform, which hopefully will translate into new experimental research approaches. Despite the lack of a national program for renewal of research platforms, we believe that our strategy is correct and will translate in future gains. This effort run, in parallel, with the continuous commitment to support research, from fundamental to clinical. As for the latter, we continued to expand the activities of the Clinical Academic Centre-Braga Association (2CA- Braga), which translated into innovative therapeutic interventions provided to hundreds of patients in the region. Through the 2CA-Braga we further expanded a network of collaboration with respect to consultancy and clinical research services to other healthcare providers, academic institutions and companies (including several MedTech spin-offs, many of which based in Braga). This is setting the stage for the creation, together with Hospital de Braga and InvestBraga (the investment body of the city of Braga), of an incubator for biomedical companies.

An institution that aims to be recognized internationally depends on its ability to create networks. In light of this view, during the past year we made efforts to reinforce internationalization. This included the promotion of students and faculty exchange programmes (ERASMUS and the Global Education in Medicine Exchange). We also increased the participation in several initiatives promoting medical education, training and research, both for undergraduate and graduate students, and have applied for distinct levels of certification in the areas where we are active. We continued to nurture the collaboration with key partners, but we also expanded our joint efforts with other institutions – in this regard, a note to the collaborative project of creating an International Institute for Assessment, jointly with the National Board of Medical Examiners (NBME®, USA) and the Foundation for Advancement of International Medical Education and Research (FAIMER, USA). Of relevance, the work of the curricular reform has also provided unique opportunities to expand our network in the medical education field, by hosting guests from different institutions and also by promoting visits of our students to other medical schools.

A medical school is a cluster that includes healthcare institutions. We have settled, and nurtured, throughout the years, innovative partnerships with healthcare institutions. However, we believe that it is now time to also move forward in providing healthcare; such action, to be developed in close cooperation with our affiliated institutions, is designed to add value to the healthcare system. Thus, we are starting, together with our clinical partners new initiatives (e.g. a digital healthcare center - P5 Medicine) designed to promote better healthcare to populations, namely in the link



between primary and hospital care and for the promotion of health and monitoring of chronic diseases. This is a major step for the EM and its partners that represents an opportunity to move further into the core of the healthcare arena.

Postgraduate education is a major mission of the EM, not only within formal Master and PhD programs, but also in advanced training for health professionals and biomedical researchers.

A main achievement of 2017-2018 was the formal recognition of quality and corresponding accreditation of the Master in Health Sciences by the national accreditation entity [Agência de Avaliação e Acreditação do Ensino Superior (A3ES)] (Annex III).

In 2017-2018 the EM enrolled 48 additional students in the Master and PhD programs, many of them through Portuguese Science Foundation (FCT) – and regional (CCDRN)-funded programs to the EM, but also through the national call for individual scholarships.

In line with a culture of assessment and search for certification early developed in the medical degree, in 2018 the EM submitted its PhD programs for formal assessment by ORPHEUS (Organization for PhD Education in Biomedicine and Health Sciences in the European System). This process intends to certify whether the quality of the training provided complies with the best practices advocated by *ORPHEUS*, by *The Association of Medical Schools in Europe* and by the *World Federation for Medical Education*. The assessment standards includes criteria on the research environment, outcomes, admission policy and criteria, quality of the training program, quality of the supervision, thesis requirements and assessment and structure of the graduate school. It should be highlighted that the process of self-assessment started about three years prior to the formal submission for certification. This allowed all those involved in the postgraduate activities to critically reflect on the ongoing programs and led to qualitative improvement of the programs. Specifically, it led to increased visibility and opportunities of exposure to topics on ethics and academic integrity, of transferable skills [that integrate the mandatory curricular unit devoted to the elaboration and presentation of the thesis plan], and on training of supervisors, which will be more consistently offered from now on. A site visit by the ORPHEUS evaluation committee is expected to occur in the fall of 2018.

A challenge and concern for the near future pertains with the end of the funded FCT-PhD program, for which the last edition will start in the academic year 2018-2019. FCT discontinued this funding instrument and will allocate scholarships based on the evaluation given to the research institutions; a process that is still ongoing.

As for the offer in advanced training courses, the EM/ICVS continued to attract a considerable number of participants: 1317 in 2017-2018. The courses on entrepreneurship and research innovation were maintained, confirming the expectation that this will contribute to bring novel competences to young researchers on how to translate basic research into applied products.

A specific reference is to be made on the new organigram of the EM which resulted in a reorganization of the Post-graduation Unit. In addition, new directors were appointed for the MSc and PhD programs. The continuous efforts to develop technological platforms and processes to facilitate the daily administrative activities of staff, students and supervisors advanced considerably in this academic year.

Regarding research activities, in 2017-2018 the ICVS and the 2CA-Braga expanded their outcomes. Indeed, in 2017 the number of peer-reviewed international publications significantly increased (236 papers in international peer-reviewed journals - referenced in ISI, Scopus or in Pubmed), in addition to 9 international book chapters. The increase in the number and impact of the clinical studies developed in the 2CA-Braga, including clinical trials, was also a major achievement: 83 clinical trials ongoing in 2017 (approximately 60% of the number of the trials/year run in Portugal), in addition to 56 clinical studies, including research projects in partnership with the ICVS and other research institutions from the University of Minho, 14 observational studies and 1 validation study of medical devices. As an important indicator, the 2CA-Braga recruitment rate of patients has been consistently above 85%.

As in previous years, there was a growth in the number and complexity of the activities of the EM. As a result, we kept the recruitment strategy, stabilizing the positions of the academic and non-academic staff, increasing their satisfaction and allowing better mid-term planning of activities. The EM has also kept monitoring the performance of every staff member (academic and non-academic) in several academic domains (scientific, pedagogic and managerial). However, in the academic year 2017-2018, the greater effort was related to the recruitment of researchers to more stable conditions. This move has been strongly reactive to the novel governmental directives regarding “scientific employment” (that were not carefully planned by the national authorities and have created a very confusing and conflicting scenario). Irrespective of these conditions, the EM/ICVS decided to move forward and to open tenure research positions; this will balance more appropriately the faculty profile and is a clear sign of alignment with our mission and vision.

From the financial perspective, 2017-2018 was again a very difficult period for the universities in Portugal, including for the University of Minho. This less positive scenario has been aggravated by

the novel regulations for public contracts and acquisitions (a true nightmare of bureaucracy) that have imposed severe delays in our operations. However, a careful and balanced budget, an efficient and anticipated plan to face the novel regulations, along with our continuous efforts to maintain (and expand) the sources of competitive funding have mitigated the detrimental impact of low budgets and assured the conditions for the continuous development and consolidation of the EM/ICVS project.

## **2. OBJECTIVES AND STRATEGIES IN 2017-2018**

The vision of the EM's project has been established, continuously revisited, and progressing as planned. As a corollary, we have achieved significant successes in the educational programs and research activities. To keep a permanent commitment to the benchmark of quality at the highest international level, we need to continuously improve, seeking to assure the best conditions to reinforce the EM dynamism with its engagement in new educational and research initiatives, building on existing strengths and capacities.

In line with the past, this year we renewed our commitment on the:

- continuous improvement of the pedagogic and scientific quality of the EM project;
- adjustment and implementation of new pedagogic methods, namely in the preparation process to launch the new curriculum;
- incorporation of new pillars (namely Health System Sciences) in our curricular plans and a greater visibility of medical Humanities;
- introduction of training programmes that promote the acquisition of skills on the usage of novel medical technologies;
- continuous usage of best practices in medical assessment, namely through an effort to expand formative assessment opportunities and feedback;
- active participation in international medical education networks;
- restructuring and reorganization of medical residency training program and clinical fellowships programs;
- active recruitment and promotion of academic, research and non-faculty staff;
- promotion of the awareness of the quality of our educational and research programmes, nationally and internationally;
- continuous search for the best practices in pre and postgraduate training;
- positive and constructive interaction between all stakeholders involved in the project;

- creation of the best working environment, by improving physical and logistic conditions, by promoting development and education activities for all collaborators, but also by promoting a safe and vibrant working environment for students, researchers, non-faculty staff and faculty;
- continuous improvement in the management and in creating efficient processes in the EM;
- mitigation of the detrimental impact of the externally-imposed bureaucratic load and of the unpredictable financial scenarios;
- creation of conditions that assure the future sustainability of the EM project.
- support fundamental, translational and clinical research efforts;
- renewal of the research platform, namely through a significant investment in the Animal House, research equipment (including a 3T MRI scanner) and the setting of a Phase I Clinical research unit;
- reinforce the network of collaborating R&D institutions, with the launching of a Hackathon and a Program of common grants within the partnership with the INL – International Nanotechnology Laboratory;
- launch a new Research Domain on Population Health;
- expand clinical research through the 2CA-Braga in collaboration with national and international industrial partners.

### **3. ACTIVITIES AND ACHIEVEMENTS IN 2017-2018**

#### **Medical Degree Course**

##### *Six-year Integrated Master Program in Medicine*

A separate report (*Snapshot Medical Degree-Assessment of the Academic Year 2017-2018*), prepared by the Medical Education Unit, detailing the pedagogical activities and results undertaken in the academic year 2017-2018 is presented in annex IV. A brief summary of the academic achievements follows.

The academic performances showed no striking variations from the previous year. The success rates in the majority of the curricular units of the first 3 years were equal or above 90%. As in the past, failure rates were higher in the first year of the Medical Degree and progressively decrease throughout the curriculum. The minimum approval rates in courses in the 3<sup>rd</sup> year is of 93%, supporting that, in terms of academic performance, students who successfully perform in the first

years continue to thrive in the remaining of the curriculum.

In the year 2017-2018, 121 new students were admitted via the national admission process (115 under the general regime and 6 under the special regime for students from the Azores and Madeira Autonomous Regions). For the national admissions process (general contingent), the lowest entrance grade for the newly admitted students was 181.3 out of 200. Seventy-three percent of the students admitted under the general admission regime chose EM as their first option.

The gender balance of the new entrants in 2017-2018 continued biased towards women (73%). We also continue to recruit students mainly from the region, although this has decreased from the previous year: 55.5% come from the District of Braga and 17.6% from the District of Porto, which is in part driven by the economic difficulties of families.

#### *Four-year Graduate Entry Program in Medicine*

In 2017-2018, we continued with the new pathway “Four-year Graduate Entry Program” for graduate students. In this program, the selection process is within the full control and responsibility of the EM. The 2017-2018 graduate entry track selection procedure to the 18 places was identical to that in previous years and included 4-steps: (1) administrative selection - which included holding a previous degree with a final graduation grade point average equal or above 14/20 points; (2) written examination of knowledge – a Basic Sciences Admission Test with 100 multiple choice questions on biology, mathematics, chemistry and physics; (3) Assessment of Transversal Skills (ATS) – a Multiple Mini-interview like exam (OSCE-type) series of 10 stations, intended to assess personal attributes and soft skills; (4) analysis of *curricula vitae*. There were 186 applicants to this Program (10 applicants/place, similar to last year). The top-scoring 27 students were admitted to the ATS. From these, 18 students were admitted to the “Four-year Graduate Entry Program” in 2017-2018, all with valid registrations.

#### *Global number of undergraduate students in the medical program*

The global number of undergraduate students registered in the medical program in the last academic year (2016-2017) was of 128 in the first year, 128 in the second year, 133 in the third year & first year Graduate Entry Program, 137 in the fourth year, 125 in the fifth year and 153 in the sixth year. The total number of medical students of the EM amounts to 804.

## **Medical Students Associations: NEMUM and *Alumni Medicina***

### *NEMUM Report*

NEMUM (*Núcleo de Estudantes de Medicina da Universidade do Minho*) is a non-profitable organization founded by medical students in 2002. Its purpose is to represent all medical students at the University of Minho, among other aims, as to offer them a series of opportunities that complement their curriculum and their academic experience.

Thus, NEMUM is focused in areas that are important and interesting to a medical student, such as the community health and awareness, science, skill's acquisition, culture, leisure, medical education and international mobility.

Thereafter, 2018 has been quite a busy year in terms of great activities.

"Aldeia Feliz" is a project that took 25 students to isolated villages in Paredes de Coura, aiming to evaluate health and housing conditions of elderly people, their access to health care and their social environment, leading to the report of critical cases to the competent entities who would then support the people in need. Also, many opportunities arose for students to perform health screenings on the population.

During the year, many lectures and skills workshops occurred, challenging students to reflect and discuss about medical education and other themes, as well as providing them the opportunity to learn new technical, personal, medical and clinical skills. Furthermore, NEMUM organized the XI Minho Medical Meeting, this time focusing on the processes that go from a cell, to the organ, to the person and its human significance.

The Professor Joaquim Pinto Machado Cultural Week was dedicated to promote culture among students, being filled with moments for film sessions and a famous Talent Gala where students shared their talents. Also, NEMUM organized a Solidarity Sunset that aimed to raise funds for the "Operação Nariz Vermelho", a social solidarity institution.

Lastly, NEMUM received more than thirty incoming students and sent more than a dozen outgoing students from and to all over the world, within the Professional and Research Exchange programs of the International Federation of Medical Students Association (IFMSA).

NEMUM owes quite a big part of its activity and intervention to the School of Medicine of University of Minho (EM-UM), which is one of its greater partners, supporting all activities and decisions throughout the year. The Medical Alumni Association is another relevant partner, along with the University of Minho Students' Association (AAUM) and the Portuguese Medical Students' Association (ANEM-Portugal), which support the execution of many of NEMUM's initiatives.

Because too much is never enough, NEMUM is committed to continue its work in favour of the medical students of EM-UM, as well as to ensure that they always feel welcomed and at home.

NEMUM's Executive Board for 2018: Mariana Silva (President); Marta Almeida (Vice-President for External Affairs); Gonçalo Cunha (Vice-President for Internal Affairs); Mariana Gonçalves (Vice-President for Administration); Carina Monteiro (Treasurer).

The NEMUM President,  
Mariana Silva

#### *Alumni Medicina Report*

*Alumni Medicina* (Núcleo de Antigos Estudantes de Medicina da Universidade do Minho) is a non-profit association composed by the alumni of the School of Medicine of the University of Minho. The mission of this association is to support the project of the School of Medicine and to promote the interaction between its members and their *Alma Mater*.

In the last years a significant effort was devoted to increasing the number and the quality of the scientific sessions (courses and workshops) organized by *Alumni Medicina*. The aims of this scientific program are to offer more diversity and opportunities for Continuous Medical Education to healthcare professionals and to promote the interaction between the School and the professionals from different universities and healthcare institutions. *Alumni Medicina* have also been offering courses addressing specialized training of competences residents from various medical specialties must acquire for clinical practice (InAnestesia, iPsiquiatria and iNeurologia). In addition, these events are an important financial support to the project of *Alumni Medicina*.

We connect with each other through communication and hence *Alumni Medicina* is concerned with providing specialized courses in Clinical Communication skills that train health professionals

how to better communicate with their patients. Therefore, in 2017-2018 we promoted two courses on “Clinical Communication Skills”.

Besides the scientific initiatives, *Alumni Medicina* also developed its activities in different fields. In the end of 2017 we organized again the “ExpolAC” – a meeting where young doctors transmit their experience to recent graduates about the best places for training during the “common year internship”. The same session is planned to happen in November 2018.

In 2017-2018 *Alumni Medicina* kept the cooperation between alumni and current students through their association (NEMUM). From a social perspective *Alumni Medicina* kept the social emergency program, a fund created to help current students with financial difficulties.

In order to promote cultural exchange inside the walls of the EM, *Alumni Medicina* organized two photography exhibitions, two painting exhibitions and one illustration exhibition in the main hall of the School.

The Alumni Medicina President  
Marina Gonçalves

### **Post-graduation**

A brief summary of the activities is provided in the next paragraphs (for detailed analysis, please consult Annex V).

The formal advanced training at the EM presently encompasses the following programs:

- *Master program in Health Sciences*: 18 students enrolled in 2017-2018 and 14 students defended their theses.
- *PhD program in Health Sciences*: 21 students enrolled in 2017-2018. 8 students defended their theses.
- *PhD program in Medicine*: 9 students enrolled in 2017-2018 (of which 2 in the MD/PhD track) and 3 students defended their thesis.
- *Aging and Chronic Diseases (PhDoC)*: In this inter-institutional (with University of Coimbra and Nova University of Lisbon) FCT PhD program, 9 new students were admitted in the academic year 2017-2018, formally registered in Nova University of Lisbon in this academic year.



Altogether, in July 31<sup>st</sup> 2018, 18 Master and 30 PhD students were enrolled in the post-graduate programs of EM.

As for the continued advanced training in medicine and in biomedical sciences, 2017-2018 counted with 1317 participants, distributed among 40 courses and workshops. Of these participants, 85% originated from national institutions outside the University of Minho of which 12% from foreign institutions; 81% were medical doctors. These numbers indicate that the EM/ICVS is a recognized institution for advanced training and continuous medical education. The close and fruitful collaboration with Alumni continued in 2017-2018 with respect to a relevant offer of training for residents, within the national residency programs; specifically, in Anesthesiology and in Psychiatry.

## **Research**

The EM research activities are developed in the context of the ICVS | Life and Health Sciences Research Institute (member of the ICVS/3B's - Associate Laboratory) and the 2CA-Braga | Clinical Academic Centre – Braga, Association.

The ICVS is a research subunit fully incorporated within the EM, integrated in the national system of science since 2003 and ranked with “Excellent” by the FCT’s international evaluation panels. The research activities in the ICVS are centered in four multidisciplinary Research Domains: i) Microbiology and Infection; ii) Surgical Sciences; iii) Neurosciences; and iv) Population Health - which are supported by laboratorial core technical units/facilities. The Population Health Research Domain was created in the last quarter of 2017 and resulted from both the clustering of researchers from the existing domains and the fusion of two previous Pilot Research Lines, on Community Health and on Education in Life and Health Sciences. The launching of this new domain emerged from the ICVS/EM understanding that fostering further research in the field of Population Health was critical for both the ICVS and the EM missions. As a consequence, both Pilot Research Lines formally ceased activity.

The distinctive aspects of the ICVS development strategy are: i) an integrated, flexible and collegial organization, aiming at high-quality scientific outputs; ii) the quality/differentiation of human resources, focused on a small number of research domains with high critical mass; iii) the connection to health care institutions – namely through the 2CA-Braga – reflected in the clinical scope of its research and in the training of physicians; iv) the interaction with research institutions

in the areas of technology, particularly within the context of the ICVS/3B's - Associate Laboratory (ICVS/3B's AL).

*The ICVS/3B's-PT Government Associate Laboratory*

The ICVS/3B's AL was launched in 2011 to produce highly competitive research in the interface Health Sciences/Technologies, pursuing the goal of expanding the boundaries of current knowledge and developing translational activities on innovative prophylactic, diagnostic and therapeutic solutions.

In the context of the ICVS/3B's – AL, an application for the period 2018-2022 was submitted in the first quarter of 2018 to the evaluation process of R&D units implemented by the FCT. This process is of high relevance since it will result in potential alterations in the basal/programmatic funding for the ICVS/3B's – AL.

Also in the beginning of 2018, under the framework of the ICVS/3B's – AL, the ICVS established a joint ORBEA (Organism Responsible for Animal Welfare) in association with the 3Bs. The ICVS/EM also hosted the IV Meeting of the Portuguese Society of Laboratory Animal Science, and was one of the Portuguese institutions that signed the Public Agreement on Quality and Transparency in Science Involving Laboratory Animals.

*The Clinical Academic Centre – Braga, Association (2CA-Braga)*

The 2CA-Braga results from a partnership with the *Grupo José de Mello Saúde/Braga Hospital* and the Eurotrials, aiming at developing clinical research, including clinical trials in collaboration with international industrial partners. The 2CA-Braga combines a team of researchers, physicians and other health professionals, to which is associated a team of project managers, nurses and clinical trials coordinators/monitors, ensuring a professional management of the 2CA-Braga.

A detailed description of the ICVS activities and achievements during 2017 is reported in the *ICVS Annual Report 2017* (annex VI) (a note here, the ICVS annual report refers to the civil year of 2017, while the present EM report refers to the academic year 2017-2018, so some numbers may slightly differ). In this section of the EM report, we summarize below the main achievements attained in 2017. It should be noted that the information indicated below refers to the civil year of 2017, in accordance with the yearly reports of the ICVS; thus, for some data presented, for instance the number of post-graduation students, a mismatch between these figures and those presented in the Post-Graduation report (annex V) might occur.

### *ICVS Human Resources*

In 2017, the ICVS kept actively involved in R&D activities a differentiated research team, pursuing a strategy of reinforcing the productivity of its body of PhD members. The total number of ICVS members was of 312, including 91 PhDs (40 EM Faculty, 20 Researcher Contracts, 2 Research Fellows and 29 Post-Docs), 29 Research Fellowships and 168 post-graduation students (129 PhD students and 39 Master students) and 24 non-academic staff (5 administrative and 19 specialized technicians, with salaries supported by the EM).

### *ICVS Financial Resources*

As an important achievement, during 2017, the ICVS significantly increased the amounts of competitive funding from research grants, involving a total sum of about 18.2 million € in ongoing projects (3 years of accumulated value) from calls at the international and national levels, of which 6.7 million € correspond to funding obtained in 2017. Indeed, the level of funding granted through competitive sources and from contracts with leading industrial partners has been reinforced, namely through 51 ongoing projects (21 from FCT; 4 from NORTE2020; 3 from other national sources; 2 from H2020; 14 from other international sources and 7 from contracts with the national industry).

To be highlighted in 2017, was the funding obtained from PORTUGAL2020 in the context of a collaboration with the University of Aveiro and the Faculty of Sciences from the University of Lisbon, under the project “MEDPERSYST”, which corresponded to a total amount of 2.9 million €.

In 2017, industry-sponsored R&D has been performed in areas of mutual interest, namely with sponsors such as TECNIMEDE, FUNDAÇÃO BIAL and KARL STORZ.

### *ICVS Infrastructure*

At the ICVS facilities, all the scientific equipment from the installed technological platform is shared amongst the Research Domains. In addition, this equipment is also available under request to other research units from the University of Minho and to the Portuguese scientific community in general. Specifically, the ICVS provides: fully operational Functional Cores for Animal Housing, Microscopy, Histology, Molecular Biology and Endoscopy/Minimally Invasive Surgery, and Shared Technical Facilities for Cytometry, Cell and Tissue Culture, Bio Banking, Electrophysiology and Biosafety Level 2 and 3. Some of these Functional Cores, such as Histology, Microscopy and Animal Housing also provide external services.

Importantly, in 2017 the ICVS continued the installation of maintenance of scientific equipment in the new Animal Housing facilities installed in the adjacent area of the EM/ICVS building, which endowed this infrastructure of the necessary equipment to be fully operational.

In addition to the accomplishments reported above, the following major achievements of 2017 are to be mentioned:

- Growth in the number of international publications.

During 2017, the ICVS significantly increased the number of publications in international peer-reviewed journals (referenced in ISI, Scopus or in Pubmed), in a total of 236 papers (from 196 in 2016), in addition to 9 international book chapters and 220 proceedings and communications in international congresses. Among the articles published in 2017, 205 were produced within the three research domains (Microbiology and Infection, Neurosciences and Surgical Sciences), corresponding to 71% in Q1-Q2, with 48% in Q1, with an average Impact Factor (IF) of 5.6. Additionally, the ICVS published 6 articles in the fields of Medical Education and Public Health, 9 in the fields of Community Health and 16 in other fields.

- Increase in the number and in the impact of the clinical studies developed in the 2CA-Braga.

The 2CA-Braga has developed clinical research with a growing impact, hosting 1 phase I and 4 phase II alongside 62 phase III commercial clinical trials. Additionally, the 2CA-Braga developed 79 other clinical studies, including 14 interventional studies in partnership with the ICVS and other research institutions from the University of Minho (with projects funded by the European Commission or nationally, by the FCT and FEDER) and 11 validation studies of medical devices, mostly in collaboration with spin-offs and young startups, both Portuguese and from elsewhere in Europe.

- 42 international and national scientific awards.

The international awards included: the “Medalhas de Honra L'Oréal Portugal para as Mulheres na Ciência”, by *L'Oréal Portugal*, the *Comissão Nacional da UNESCO* and FCT; the “Prémio Thomé Villar”, by Boehringer Ingelheim; and the “Prémio Santa Casa Neurociências - Melo e Castro”, by *Santa Casa da Misericórdia de Lisboa*.

#### 4. ARTICULATION WITH THE NATIONAL HEALTH SYSTEM

As detailed in previous reports, the EM has set up an innovative articulating strategy with the several institutions within (and beyond) the National Health System. The key element of the strategy is the multi-center approach based on inter-institutional partnerships within the legal framework concerning the articulation between the Medical Schools and the Health Services, a legal document (*Portaria 36/2002*). The EM is institutionally articulated, under the terms established by law, with the Regional Health Administration - North (ARS-N) and more specifically with *Hospital de Braga*, *Hospital Senhora da Oliveira (Guimarães)*, *Unidade Local de Saúde do Alto Minho (Viana do Castelo/Ponte de Lima)*, *Hospital Santa Maria Maior (Barcelos)*, *Hospital Privado de Braga*, *Hospital CUF Porto*, *Hospital da Arrábida*, *Casa de Saúde do Bom Jesus (Nogueiró – Braga)* and with Health Centres in the Northern Regions of Portugal.

Throughout the years, these partnerships have consolidated, in its multiple dimensions: i) pedagogical activities, through a high-standard and increasing involvement of health professionals in the EM; ii) research activities, as evidenced by the number of attending physicians engaged in academic and research activities and by the creation of Clinical Academic Centres; and iii) assistance care level, by the number of EM faculty members with dual affiliations with these health care institutions. Importantly, in a setting of consolidation it is to refer that the level of commitment with academic activities has persisted, despite the increasing number of editions of the medical degree. The renewal of the clinical staff involved in academic activities has also progressed at a steady level and the quality of the clinical teaching continued to be recognized by students and physicians, and the presence of the students in the affiliated hospitals continues to be extremely well appreciated.

The coordination of this interplay by the Coordinating Committees ("*Comissões Mistas*") has been very efficient. The Committees are appointed to decide on matters of relevance for the coordination of activities between the EM and the Health Services. The established Committees have adopted a Protocol that proved to be very efficient and became a central piece for the development of an efficient inter-institutional collaboration. This Protocol defines the model of cooperation (namely the Clerkship coordinating groups) in what concerns the clinical training of the medical students. These regulations cover the basic guidelines for the participation of the Health Services in the undergraduate clinical training, the competences and responsibilities of each of the participant institutions, and the term of office of the clinical supervisors and of the clinical tutors.

The Clinical Coordinating Groups, Supervisors, Tutors at Affiliated Hospitals and Health Centres are listed in Annex VII.

## **5. EM GOVERNING AND ADVISORY BODIES, SUBUNITS AND COORDINATING BOARDS**

At present the main governing and advisory bodies, subunits and coordinating boards of the EM are as follows.

### *Governing bodies*

- The School's Council
- The School Presidency (President and Vice-Presidents of the School)
- The Scientific Council
- The Pedagogical Council

### *Advisory bodies*

- The Advisory Council of the School
- The Advisory Council of the Scientific-Pedagogical Subunits
- The School Secretary

### *The School subunits*

- The EM Scientific-Pedagogical Subunits: the Scientific Areas
- The EM Research Subunit: the Life and Health Sciences Research Institute

### *Coordination boards*

- The ICVS Directive Board
- The Course Committees
- The Coordination of the Organic Subunits and of the Units and Support Offices

The competences and the present composition of these bodies and boards are presented in Annex VIII.

## 6. HUMAN RESOURCES

There is nothing more relevant for a project than its people. In line with this view, the strategy to build the distinct groups of the Medical School was kept as a priority.

### *Academic staff*

Once again great attention and care were devoted to the recruitment and promotion of academic staff. For that purpose, the EM has established its own benchmarks/recommendations for academic progression, which are known by all members of the faculty (and by those that express interest in joining the faculty). It is important to assure that the selected candidates have an adequate understanding of the institutional project and commit to contribute to the development of its specificities, namely in what concerns seven essential aspects: (i) the alignment with the mission and vision of the EM; (ii) the proactive learning methodologies; (iii) the integration of multidisciplinary teams; (iv) the commitment with the permanent monitoring and quality assurance; (v) the relevance of medical education and faculty developmental processes; (vi) the role of research, as a crucial element for a research-based learning process, and (vii) the engagement in research activities (including submission of the research projects to the strategic guidelines and priority areas defined for the ICVS).

The Medical Education Unit has established annual faculty development programs that target newly admitted academic staff but also provide continued training for the existing faculty. The program is based on workshops, supplemented with small team activities and informal discussions that create opportunities for addressing individual issues.

In the academic year 2017-2018, the School has a faculty of 90 members (22 Full Time) of which 56 are PhDs. The faculty includes: 5 Full Professors, 11 Associate Professors, 6 Assistant Professors and 68 invited teachers (1 invited Full Professor, 5 invited Associate Professors, 30 Invited Assistant Professors and 32 Invited Teaching Assistants). Additionally, the EM counts with 2 Permanent Invited Professors, 9 Visiting Scholars and many other collaborators particularly related to the Clinical Residencies. The full composition of the regular teaching staff is listed in Annex IX, together with their qualifications, academic/hospital position and scientific area (for a matter of precision, the academic position is indicated in Portuguese). The Clinical Supervisors and Tutors who supported the clinical training of students in the Hospitals and Health Centres during the academic year 2017-2018, in a total of around 760 clinicians, are listed in Annex VII. In terms of the faculty profile, it is important to highlight that 73% (66 out of 90) of the staff members are MDs.

### *Non-academic staff*

Annex IX presents the non-academic staff members, in a total of 34 (without including non-permanent staff), and their qualifications, position and allocation. The academic profile of the staff is above the average situation in the Portuguese higher education system (71% of the staff have a higher education degree). It's also worth mentioning that part of the staff is allocated to the research institute, given that the ICVS cannot hire personnel; this represents a significant effort from the EM to guarantee the best possible conditions for the research activities in the ICVS and an important challenge for the future. The EM is proud to say that a great care has always been given to assure that every member of the non-academic staff can also undergo educational activities to improve their qualifications.

## **7. FINANCIAL RESOURCES**

Since 2000, within a contractual program established with the University, an annual budget has been allocated to the EM to cover overall expenses (salaries, costs with healthcare units, current expenses and equipment). The initial budget allocated to the School in 2017 was of 5,615,948.00 Euros.

The judicious use of the financial resources is obviously a priority of the leadership. This is a difficult exercise of finding the adequate balance: on one hand, the obligation to respect to our fiduciary duties of maintaining the operations, and on the other the need to plan strategic and generative actions that allow the transformations expected from an innovative Medical School and that assure the sustainability of the future. Following with rigour the plans approved for the period 2017-2018, we were able to accommodate the unexpected difficulties created by a turbulent regulatory environment, and simultaneously to invest in the reinforcement of the human resources and in the renewal of our technical platforms.

Such efforts could only be possible as the EM and the ICVS continue to foster the strategy of increasing and diversifying additional sources of funding. As a result of this effort, a significant amount of external/competitive funding was obtained, particularly from the Portugal 2020, international agencies and foundations, and other sources, including national and international industry.



## 8. PLANS FOR 2018-2019

In alignment with our mission, the major goal for the near future is to keep a permanent commitment to the benchmark of quality at the highest international level. Thus, we pursue continuous improvement, seeking to assure the best conditions to reinforce the EM dynamism.

At the educational level we will reinforce the commitment to:

- pursue the endeavour of adapting our activities to the changing landscape of Medicine (in particularly through the renewal process of the curriculum reform);
- continue developing the best practices of medical care;
- prepare for the accreditation exercise of the PhD programs in Health Sciences and in Medicine by the national Accreditation Agency (A3ES) in 2018-2019;
- prepare for the certification assessment of the PhD programs in Health Sciences and in Medicine by ORPHEUS;
- increase the offer of transferable skills to students in the Msc and PhD programs;
- reinforce the management structure for the pedagogic activities;
- reinforce the support to continuous medical education, training and assessment of clinical and laboratory skills, using well-established, but also innovative, methods and tools;
- further contribute to the structuring and organization of medical residency training program and clinical fellowships programs, as well as the development of new collaborations with healthcare partners;
- continue the internationalization of the EM project, namely through the establishment of new partnerships with other prestigious institutions around the globe, participating in several international collaborative efforts;
- define strategies for the renewal of the FCT-PhD programs and to foster other sources of funding for the post-graduation programs;
- maintain the offer of high-quality advanced training;
- initiate activities in the healthcare field.

The construction and consolidation of the EM pedagogical project will continue in parallel with the capacity of the ICVS to perform internationally cutting-edge research. We will reinforce the commitment to:

- expand the research activities in the context of the newly created Research Domain on Population Health;

- explore new perspectives for the expansion of our research activities within the context of ICVS/3B's AL;
- continue expanding clinical research through the 2CA-Braga, in collaboration with national and international industrial partners, particularly by finishing the setting up of a phase-1 clinical trial infrastructure;
- develop the B-MedTech park to foster the interaction with the spin-offs in the perimeter of the EM/ICVS to create new products with potential impact in healthcare and in the creation of value;
- reinforce the body of research staff, namely by opening positions for tenure research positions;
- expand the network of collaborating R&D institutions;
- launch an EM sponsored process for the acquisition of scientific equipment for ICVS;
- become a member of the European Animal Research Association (EARA).

The above plans, we believe, will have impact on the recruitment of students/ researchers/ academics and also on more sustainable and diversified funding sources.

## **9. FINAL REMARKS**

We believe that the core strategies and goals of the EM for 2017-2018 were accomplished. The vision of a medical school with high reputation in the medical education and research arenas has been guiding our activities. The 2017-2018 academic year proved to be successful in establishing such objective. The culture of assessment that has been established and the ambition to fulfil the mission of the EM have been the driving force for renewal. Obviously, the success of the EM project has only been possible by combining the appropriate mixture of competence, enthusiasm, commitment and team spirit. A strong word of praise and gratitude is due to all (students, researchers, non-faculty and faculty) who have contributed to the EM project. We will continue to pursue our mission with the same determination and enthusiasm.

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