DESCRIPTION OF A PROFESSIONAL MASTER'S PROGRAMME ON RESEARCH PROCESSES AND INNOVATION IN HEALTHCARE IN BRAZIL

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Abstract

The Brazilian national coordination for the improvement of higher education personnel (CAPES) approved the Professional Master's Programme on Research Processes and Innovation in Healthcare course in 2013, and the first class started in 2014. This paper describes the programme. The programme requires 2 years, including 360 class hours plus a thesis. The programme comprises mandatory and elective courses. The master's thesis must align with one of two work fields. Students can have different backgrounds, such as health, management, law and engineering. During the programme, students work together and in partnership with other institutions and companies on multidisciplinary projects. In the coming academic year we will offer the students the opportunity to specialise, during the master's programme, in some predefined areas. This Master's programme prepares professionals for the needs of the market, and connects research, clinical practice, industry and government, working in a multidisciplinary team to improve quality and innovate in healthcare.

Keywords: masters programme; innovation; research; healthcare

Introduction

Healthcare represents one of the largest industries in the world. An important shift towards value is already recognised and even traditional health organisations must respond to it in order to continue in the market.[1] Health organisations are under pressure to identify and implement new management strategies. In this context, healthcare professionals need to explore their innovative and entrepreneurial sides to in order to be up to date with the market needs. However, most of the undergraduate and graduate programmes do not follow the speed of the market, and this results in unprepared health professionals.

Science and innovation have a direct correlation. The more good science we have, the more innovation will be implemented in society. Within Brazil, an increasing number of scientific publications have been observed over the few past years; however this knowledge has not been translated into new technologies or other innovations.[2] This reality raises at least two important questions: Is the quality of our science good enough to provide a basis for new technologies and innovations; and, are our researchers really working towards industry and societal needs?

In light of these questions, in 2013 we proposed to the Brazilian Government the implementation of a Professional Master's Programme on Research Processes and Innovation in Healthcare, for Brazil. The programme was to be focused on two core points: (1) Research processes and applied methodologies, with the aim of assessing the quality of available evidence and conducting high quality studies; and (2) Technology and innovation; with the aim to work together with industry to create new products, processes and services that directly address the needs of the market.

The aim of this paper is to describe the Professional Master's Programme on Research Processes and Innovation in Healthcare in Brazil.

Methods

It was necessary to obtain national regulatory approval. The Brazilian national coordination for the improvement of higher education personnel (CAPES) approved the Master's programme in 2013, and the first class started in 2014. The course takes place at the Instituto de Cardiologia do RS - Fundação Universitária de Cardiologia (IC-FUC), in Porto Alegre - RS, Brazil.

Programme Design

The programme aims to train professionals to act collaboratively in the creation, validation and

implementation of scientific methodologies and technologies in the health area, in order to meet social, organisational, professional, and market demands for provision of local, regional, national and international health services. Additionally, it aims to stimulate the innovative and entrepreneurial spirit of the student, and consecutively, of the society. Aligning with the institutional scientific direction, the programme has a coordinator who works together with a coordinating committee (Figure 1).

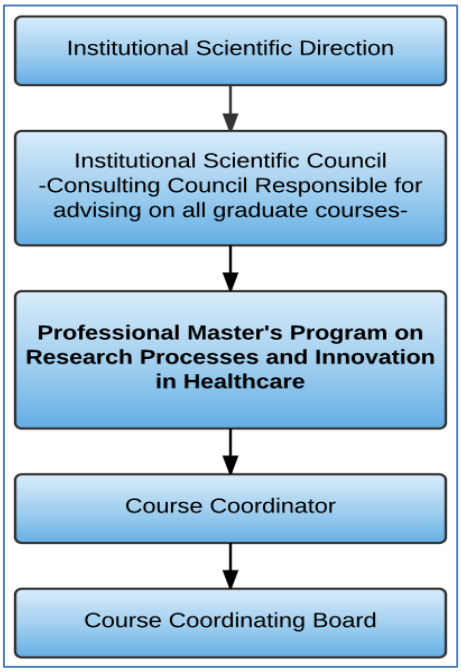

Figure 1. Course organisation chart.

Students can have different backgrounds such as health (medicine, nursing, etc), management, law and engineering. The course takes 2 years, and includes 360 class hours plus completion of a thesis. During the course, students work together and in partnership with other institutions and companies on multidisciplinary projects.

The Master's thesis must align with one of the two defined work fields:

(1) Research processes and applied methodologies, with the aim of assessing the quality of available evidences and conducting high quality studies; or

(2) Technology and innovation; with the aim to work together with the industry to create new products, processes and services to directly address the needs of the market.

For field 1, we have conducted a large number of systematic reviews and implemented a significant number of local and multicentre clinical registries, among others, and for Field 2, we have mostly developed projects in partnership with industry to create new products for the market and perform validation studies for new products.

Course Syllabus

The programme includes 11 credits of mandatory disciplines and 13 credits of elective disciplines for a total of 24 credits. Each credit corresponds to 15 hours of class contact time. All students must take the mandatory courses, which are Biostatistics and epidemiology (2 credits), Bioethics (2), Technology and innovation in healthcare I (2), Intellectual property (2), Seminaries of thesis (2), and Entrepreneurship and innovation in clinical practice (1). These mandatory disciplines aim to introduce all the students to general and fundamental knowledge related to research and innovation in health.

In relation to elective disciplines, students must achieve 13 credits to complete their graduation. They are allowed to select from 12 electives, that collectively count for up to 19 credits, as they prefer and consider relevant to their projects. The available elective credit courses are: Contemporary clinical trials (1 credit), Scientific writing (2), Management of innovation and modelling of healthcare processes (2), Introduction to economics analysis in healthcare (1), Methods applied to technological innovation (2), Organisation and management of datasets in health (2), Grant proposals (1), Systematic review and meta-analysis (3), Information system and decision support (1), Technology and innovation in healthcare II (2), Telehealth and distance education (1), and Special topics in management, economics and innovation (1).

Discussion

The programme offers several additional opportunities to students. Besides the disciplines, students are encouraged to take extracurricular internships in hospitals, academic institutions and industry in areas related to their thesis. Students are allowed to get one extra credit per semester from these activities. Students are also allowed to take disciplines from other graduate courses, and these will be validated for our programme as long as they are considered important for the students' projects. Additionally, we offer partial and total scholarships, depending on monthly income. The Brazilian government does not offer scholarships for professional Master's

programmes yet, but we do have students funded by our own and by private companies.

We continue to evolve the programme. For the first semester of 2017, we will offer the students the opportunity to specialise during the master's programme in some predefined areas, which we call 'emphases'. The student will be able to choose between a general graduation in research processes and innovation in healthcare or to specialise in one of the available emphases. The first emphases available will be: (1) Technologies in cardiac surgery; (2) Clinical research;(3) Management in healthcare; and (4) Clinical nutrition.

Each emphasis will include the 11 required credits, however, instead of taking the elective credits, they will have theoretical and practical rotations inside hospitals, industry and research centres focused on the chosen area. We have one general coordinator for all emphases, and each emphasis has one specific coordinator who works together with the general coordinator. It is important to note that the students can still take the general course, they are not obligated to choose an emphasis.

Conclusion

The Master's programme prepares professionals for the needs of the healthcare market, and connects research, clinical practice, industry and government, working collectively in a multidisciplinary team to improve quality and innovation in healthcare. By encouraging partnerships with other sectors and multidisciplinary work, we believe our course has the potential to help fill the gap between research, clinical practice and market needs, which is currently lacking in Brazil.

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Conflict of interest. The authors declare no conflicts of interest.

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