

Cardiovascular Research: New Model of Collaborative Training Program

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The clinical research has a critical importance for the advancement in medical practice, being the vital component to convey discoveries from basic science to clinical practice. Cardiology is a clinical field that has seen a rapid advancement in clinical care, partly due to the intensive clinical research in this field. In fact, the number of randomized clinical trials in cardiology has increased from 2,689 to 4,718, when comparing two periods (1990 to 2000 and 2000 to 2009)¹, an increase of almost 43%. In spite of this rapid advancement in clinical research, one important issue to be considered is that methodology in clinical research is not easy to master. With the development of the medical curriculum, space for clinical research methodology training during graduation is limited and physicians are often not prepared to understand the concepts, methods, and pitfalls of the research process. The result is that MDs applying for clinical research grants have often reduced chances when compared to PhDs applying for basic science grants.

The task force in training in cardiovascular research emphasizes the importance, for every cardiovascular trainee, of direct participation in the research. General standards of training involve the training institution and the faculty. In addition to a skills training program such as in statistics and epidemiology, a successful training program should also involve practical training, such as carrying out mentored clinical research so that the trainee can acquire the capacity to carry out intellectual inquiry and responsibility to effectively prepare and conduct research protocols².

Although methodology and clinical research training programs might be similar across different medical specialties, it is also critical to have the methodology adapted to the nuances of clinical research in cardiology³. It is clear that a large number of research pathways are possible; however, the solid understanding of the process concepts is necessary, as well as how fast or how effectively physicians will acquire and apply the knowledge for the benefit of patient care.

The increasing interest in carrying out research that is both scientifically rigorous and relevant to disease processes and patient care⁴ is now recognized. In addition, translational research training for Ph.D. scientists is getting more attention as well as an influx of public and private funding, which is renovating a field that challenges some traditional notions of science as pointed out recently in an article published about translational research⁴. There are different models of clinical research training. In the US, one type of award - the K30 - was responsible for the creation of several different types of clinical research training programs. This award helped with the development of approximately 60 different programs in clinical research training. Most of them involve a 1 or 2-year intensive training in clinical research, offering a certificate at the end (Masters of Science, MPH or PhD). In cardiology, one similar model is an innovative training model called Tomorrow's Research Cardiovascular Health Professionals (TORCH), which is an integrated 2-year program for health care professionals from diverse disciplines to be mentored toward careers as leaders in translational cardiovascular research, applying discovery to human health⁵. Although these programs are comprehensive and yield excellent results, they usually target the young physician - recently emerged from residency or medical school - thus leaving out professionals who received their degree 5 or 10 years before.

However, an important innovation is now being observed in clinical research training with the development of interactive online tools - such as the Web 2.0 tools. They allow the use of novel methods of collaborative learning that are difficult to be implemented in the traditional classroom. In fact, recently, in an attempt to facilitate the spread of knowledge and using a truly global training program to which physicians around the world and from remote areas could have easy access, an innovative method based on a distance-learning model using cutting-edge methods such as the Web 2.0 tools (www.clinicalresearchlearning.org) has been created⁶. In the beginning, the mission of this program was directed at physical and rehabilitation medicine physicians; however, due to the increased interest of physicians from other specialties and the scarcity of programs that would discuss the fundamental issues related to clinical research in depth, this program was successfully made available to physicians from other specialties, including cardiologists. It is a dynamic, intensive, collaborative program that encompasses from the basics of clinical research such as how to formulate research questions, select study populations, randomization, blind statistical methods to more advanced topics, such as adaptive designs and propensity scores. One important feature of this program

Key words

Research; research design; biomedical research; education.

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Manuscript received October 19, 2009; revised manuscript received March 15, 2010; accepted March 15, 2010.

is the principle of collaborative learning, in which participants build the knowledge together by discussing the course topics in a course forum. It usually sparks a wide variety of comments and viewpoints. This method fits not only researchers, but also physicians at postgraduate courses in specialized fields or areas at the universities, including reviewers from peer-review journals interested in improving their skills in clinical research and physicians interested in learning evidence-based

medicine to keep updated with clinical practice. Such method can improve the quality of the postgraduate courses, develop clinical research centers and provide high-quality clinical research, which will benefit patient care.

In conclusion, all efforts and strategies are worthwhile and vital to the improvement and maintenance of the quality of clinical research now and in the future on behalf of the welfare of patients with cardiovascular diseases.

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