

## LETTER TO THE EDITOR

# HOW TO DEVELOP RESEARCH CAPACITY USING A COLLABORATIVE TRAINING APPROACH: THE INTERNATIONAL SOCIETY OF PHYSICAL AND REHABILITATION MEDICINE (ISPRM) INTERNATIONAL TRAINING PROGRAM EXPERIENCE

Sir,

Despite the critical importance of clinical research for advancements in medicine, it is still immature in most of the medical specialties. Physical and Rehabilitation Medicine (PRM) is an example of such a specialty that has a weak clinical research capacity. Some surveys performed in the USA have confirmed this scenario: the proportion of PRM specialists spending more than 50% of their time performing research ranges from 0% to 2%, and less than 5% of them spend more than 15% of their time performing research (1, 2). This situation is reflected in grants as, according to the 1987 National Institutes of Health (NIH) survey; PRM holds the second lowest score percentage among the principal investigators of all medical specialties on NIH or Alcohol, Drug Abuse, and Mental Health Administration (ADMHA) grants (3). In Brazil, the situation is similar, as PRM is rated as the second lowest specialty publishing in high-impact journals.

Several reasons account for the poor clinical research outcomes in PRM: (i) lack of rigorous and high-quality research training during medical school and residency; (ii) unbalanced distribution of clinical and research work; (iii) possibility of obtaining academic positions without significant research training; (iv) relatively young age of PRM specialty and therefore fewer grant sources and a less well-established research tradition; (v) significant overlap with other medical specialties, such as neurology, anesthesiology and urology; and (vi) poor performance in grant applications.

This unfavorable scenario results in fewer grants being awarded for clinical researchers (4). In fact, PhD scientists applying for basic or “bench” research grants usually obtain a higher proportion of grants (4, 5). Despite the key importance of physicians conducting translational research in order to transfer the knowledge from basic science into clinical research (6), there is a continuous decline in the number of physicians producing high-quality clinical research over the last decades. Approximately 40% of NIH grantees were physicians in the 1960s, and this proportion dropped to 25% in 1998 (7). Furthermore, NIH-supported post-doctoral research training of physicians declined more than 51% during the 1990s (8).

In order to reverse the current situation and to train leaders in clinical research in PRM, in 2008 the International Society of Physical and Rehabilitation Medicine (ISPRM) education committee supported the organization of an intensive collaborative international training course on Clinical Trials in collaboration with Scholars in Clinical Science Program and faculty members from Harvard University and the University of Sao Paulo. In fact, this training program fits with the overall mission of the

ISPRM education committee to facilitate access to research and research activities for the PRM specialists.

In order to be a truly global training program that can be accessed by PRM specialists even in remote areas, we created an innovative method based on a distance-learning model using cutting-edge technologies ([www.clinicalresearchcourse.org](http://www.clinicalresearchcourse.org)) such as: (i) different types of 2-way video-conference system that can be accessed using simple low-cost technology; (ii) an innovative web-based forum of discussion and an online poll to promote interaction between participants; (iii) access to lectures via web-streaming and podcasting; and (iv) use of a wiki platform to allow participants from different locations to interact in a group project. Our goal is to train the highest possible number of PRM specialists to perform high-quality clinical research, to increase the chances of successful grant applications and publications in high-impact peer-reviewed journals, and to develop large clinical research centers for multicenter trials.

The 24-week program covers topics ranging from the basics of clinical research (such as how to formulate a research question, select study population, randomization and blinding methods) to statistical methods (data distribution and classification, statistical tests, sample size calculation, survival analysis, missing data, covariate adjustment and meta-analysis); data collection, monitoring and reporting (include training in manuscript writing); and study designs (observational studies, non-inferior and adaptive designs and randomized clinical trials). A different new topic is introduced each week and is discussed through the interactive website forum and poll and in a 3-h weekly video-conference session.

Participants are required to read articles, complete statistical exercises, participate in a forum of discussions and in a group project in which they have to write a grant application using the online interactive wiki platform. In the first pilot year, 13 PRM physicians from Brazil, Korea and USA attended the course.

Although several clinical research courses are offered onsite in most countries, these programs require the physical presence of participants, which is challenging for physicians with an established clinical practice. Finally, one point that we considered critical is the interaction and use of the collaborative method to increase engagement and learning.

There are several challenges for a training program such as ours to produce changes in research capacity. First, it is critical that participants continue training after the course. For this we created an alumni network to promote exposure to clinical research methodology after the course is completed ([www.clinicalresearchalumni.org](http://www.clinicalresearchalumni.org)). Second, long-term monitoring

of participants and development of outcomes are necessary to adjust the program. For the 2009 version, continuing medical education (CME) credits will be awarded as this course is now being offered by the Department of Continuing Education at Harvard Medical School, and continuing medical education credits from the Brazilian Medical Association (Comissão Nacional de Acreditação (CNA)) will be awarded for Brazilian physicians. Although more work remains to be done to improve research capacity in PRM, we believe that clinical research training is the first critical initial step towards building a strong foundation for clinical research in PRM.

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