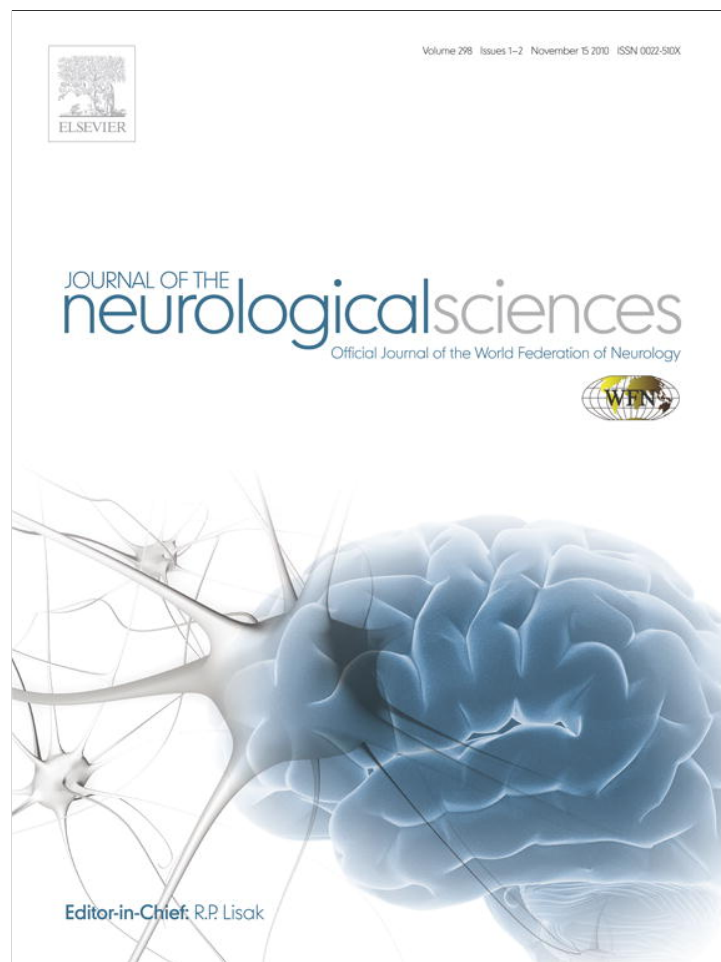


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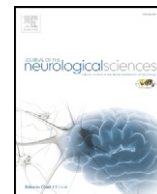
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Invited Editorial

Neurology education in Latin America and the World Federation of Neurology

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ABSTRACT

The World Federation of Neurology (WFN) is the international body representing the specialty of neurology in more than 100 countries/regions of the globe. The WFN was organized as a federation of national neurologic societies in 1957. A primary goal of the WFN is to assist low-resource countries in providing meaningful education for its neurologic health care providers and thus improve the neurologic health of its citizens. During the last decade the WFN has promoted the Neurology Education in Latin America establishing different strategies.

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The World Federation of Neurology (WFN) is the international body representing the specialty of neurology in more than 100 countries/regions of the globe [1]. The WFN was organized as a federation of national neurologic societies in 1957. Its secretariat is located in London, and it is registered as a Charity Corporation in the United Kingdom. Each country has one vote in its deliberations. A primary goal of the WFN is to assist low-resource countries in providing meaningful education for its neurologic health care providers and thus improve the neurologic health of its citizens [2]. Neurology Education in developing countries represents a challenge due to the myriad of socio-economic and structural problems these countries are facing, including poor organization of established CME, limited access to educational and reference sources (libraries, internet, journals, books, etc.) and technical or financial difficulties in attending educational activities [3].

In another hand one of the major barriers to the provision of quality care for patients with neurological disorders in developing countries is a low ratio of neurologists per inhabitants, the World Health Organization recommends one neurologist per 100,000 [3,4].

Neurology Education must be tailored for each country or region. The educational needs of developing countries are not satisfied with programs established for industrialized nations, and education programs must be organized around the individual epidemiological profile [3].

A number of strategies can be implemented in order to improved Neurology Education in developing countries, but the first step must be the evaluation of the conditions surrounding Neurology in each country, including demographics data, availability of health care, the

number of physicians and neurologists per capita, the epidemiologic profile of neurological diseases, the existence of neurology training programs and the existence of CME and/or periodic accreditation programs.

During the last decade the WFN has promoted the Neurology Education in Latin America establishing different strategies.

1. WFN educational approach in Latin America

The WFN's educational programs have been operating in Latin America under several principles [2]:

1. The successful education of neurologic health care providers, and their patients, is a major strategy in achieving improvement in health care in Latin America (LA).
2. In order to strengthen the effectiveness of this educational process, each LA country should develop a cohesive neurologic society with specific individuals identified as leading that society's educational activities.
3. The WFN will provide educational assistance in response to a specific request from a LA member country. It does not advocate seeking out or proactively identifying a country's educational needs. These needs should be identified by the participating society, not the WFN.
4. To counteract the destructive effects of the emigration of trained basic and clinical neuroscientists to countries with more resources ("brain drain"), the WFN strongly supports the principle of training neurologists in their native countries. Its primary strategy is to help countries develop their own training programs. We believe that, in

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- most situations, this can be accomplished without compromise to the educational process and within a reasonable period of time.
5. The educational material used should be of the highest quality and both problem (case) and evidence based.
 6. Although the WFN believes that the best care of patients with a neurologic illness should be given by a trained neurologist, it recognizes the need for non-neurologist caregivers as an interim measure. However, developing a cadre of well-trained non neurologist caregivers requires a core of experienced neurologists resident in that country to provide adequate training.
 7. The WFN supports the principle of establishing small, pilot studies when new educational programs are being considered.
 8. Periodic follow-up evaluation and feedback of a program's effectiveness is essential.
 9. The education of an effective neurologist should be a seamless and integrated process from medical school to residency training and then to lifelong continuing education.

2. The Latin American Neurology Training Programs and the WFN support

The WFN provides assistance in establishing neurology training programs where there are none, and helping further develop existing programs. We have worked with programs in Honduras, Guatemala, Peru, and Mexico. The request for such assistance must come from the national neurologic society and chairman of the neurology department and have the support of the neurologic society members. After a request is received, the WFN carries out a preliminary site visit to answer the following questions: 1) Is the need for help shared by most members of the neurologic community and are they prepared to make a long-term commitment? 2) Are there adequate resources, both human and infrastructural, to establish a program? 3) Are university and hospital administrators, the national minister of health, and the chiefs of related departments, such as medicine and neurosurgery, supportive? 4) Above

all, is the chief of the proposed department adequately committed and capable of assuming this most important leadership position? Following this visit, a report is presented to the requesting society and the WFN Trustees with specific recommendations. Follow-up visits are arranged according to need [2].

In 1998 Honduras had one neurologist per 325,000 inhabitants and all the neurologists were trained outside the country. The Education Committee of the World Federation of Neurology (WFN), in collaboration with the Postgraduate Direction of the National Autonomous University of Honduras, the Honduran Neurological Association, and the Honduran Secretary of Health helped establish the country's first Neurology Training Program in 1998. This program was established using a problem- and epidemiological-oriented methodology with oversight by an external WFN review board. By 2010 the program has resulted in a 50% increase in the national neurologist ratio per inhabitant, significantly improved the quality of patient care and promoted research in the neurosciences. The Honduras Neurology Training Program has provided a valuable model for other developing countries with similar needs for neurological care. Based on this Honduras experience, members of the Education Committee of the WFN have established guidelines for neurology training programs in developing [3].

The Honduras Neurology training program celebrated its 10-year anniversary. The results have been dramatic. The Neurology Department has become recognized as one of the best departments in the medical center and in Central America. A neuroscience PhD program is being developed. Importantly, every graduate of the neurology training program has stayed in Honduras. The program is attracting the better medical school graduates. Cities of secondary size are getting well-trained neurologists for the first time. Outcome assessment has shown, for example, a dramatic reduction of deaths from status epilepticus. A vigorous stroke prevention program has been initiated. Preventive programs for neurocysticercosis, a scourge of the country, are beginning to show results [2]. Importantly, neighboring countries have begun to ask for similar help from the WFN.



Prof. Guillermo García Ramos, Prof. Francisco Rubio Donnadieu Prof Felipe Vega, Prof Marco T Medina, faculties and residents at the Mexico Neurology Training Program at the Institute of Medical Sciences and Nutrition in Mexico city during the on-site WFN evaluation on August 18th, 2006

3. Continuing Medical Education project in Latin American

In the last 10 years the WFN started a Continuing Medical Education (CME) project using the WFN Seminars in Clinical Neurology and the AAN's premier continuing medical education journal *Continuum: Lifelong Learning in Neurology* [2]. This last program is a partnership between the WFN and the American Academy of Neurology (AAN). Since 2001, the AAN and the WFN have each provided six specially designed educational courses each year, by hard copy or online. In each Latin American country, participants review each *Continuum* issue, and then meet as a study group to discuss the issue, review cases, and examine how practice may differ in their country. To receive a certificate, participants must submit an evaluation form and belong to a national neurologic society. Twelve Latin America countries currently participate, including Argentina, Brazil, Chile, Columbia, Cuba, Guatemala, Honduras, Mexico, Panama, Peru, Uruguay, and Venezuela. Each country has a WFN Education Coordinator appointed by that society's President. The coordinator is in charge of receiving and distributing the courses and arranging for discussion groups, which are an integral part of the program. Upon completion of a course, each participant fills out an evaluation form, and certificates of participation are provided. Typically, these programs begin in the capital city of a country. In larger countries, secondary participating centers, each with a coordinator, have been established in smaller cities. This has occurred in Cuba, Honduras, Argentina, and Venezuela. The effectiveness of these programs depends in great part on the skills, dedication, and active involvement of the WFN Education Coordinator in that country. This program is now being used increasingly for certification purposes, grand round presentations, educational retreats, and the education of non-neurologists. In Honduras for example, the residents read one to two chapters of *Continuum* and met each week for discussion with their professors, sometimes inviting residents and specialists from other areas, such as internal medicine, to join. Some meetings also included patient evaluations [2].

The WFN and AAN are currently gradually moving from hard copy to online distribution, which will significantly reduce shipping costs and delays. Future plans include an online chat group wherein participants can communicate with the authors of the courses.

The WFN has formed a subcommittee focusing on Spanish speaking countries aimed at improving education about neurologic disorders. *Continuum* was used as part of the curriculum for the first WFN Education regional meeting in 2007, with more than 30 neurologists convening from Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica, Panama, and the Dominican Republic.

4. WFN Certification in Latin America

The WFN has recently provided a program certification process for programs that wish to have an external review. This has been carried out in Honduras, Guatemala, Mexico, and Peru. If a program meets certain predetermined criteria for an effective training program, it receives a certificate (see [Picture 1](#) and [Fig. 1](#)). This process is very effective not only in confirming that the program is functioning effectively, but also in notifying other members of the hospital and university communities that the program meets international criteria of performance. Several countries have requested that the WFN provide a process of external evaluation of their residents at time of graduation. A logical extension of that process may lead to a more formal certification and recertification process. The WFN has responded to requests for resident evaluations and has begun discussions of a certification and recertification process. In carrying out these regulatory functions, the WFN is providing a service that is available internally in most, if not all, developed countries but not in countries with limited resources and fewer neurologists. What, then, are adequate criteria for a training program in a developing country – for example, in a country of 20 million people with no CT scans, MRIs, or adequate electrophysiologic capabilities and 10 or fewer well-trained neurologists? There is general agreement that the goals of a training program should be goals that are appropriate for the needs of that country, as determined in great part by individuals practicing in that or a similar environment. How are those goals defined in the context of what constitutes adequate modern neurologic care? Can there be criteria that are internationally appropriate? [2].

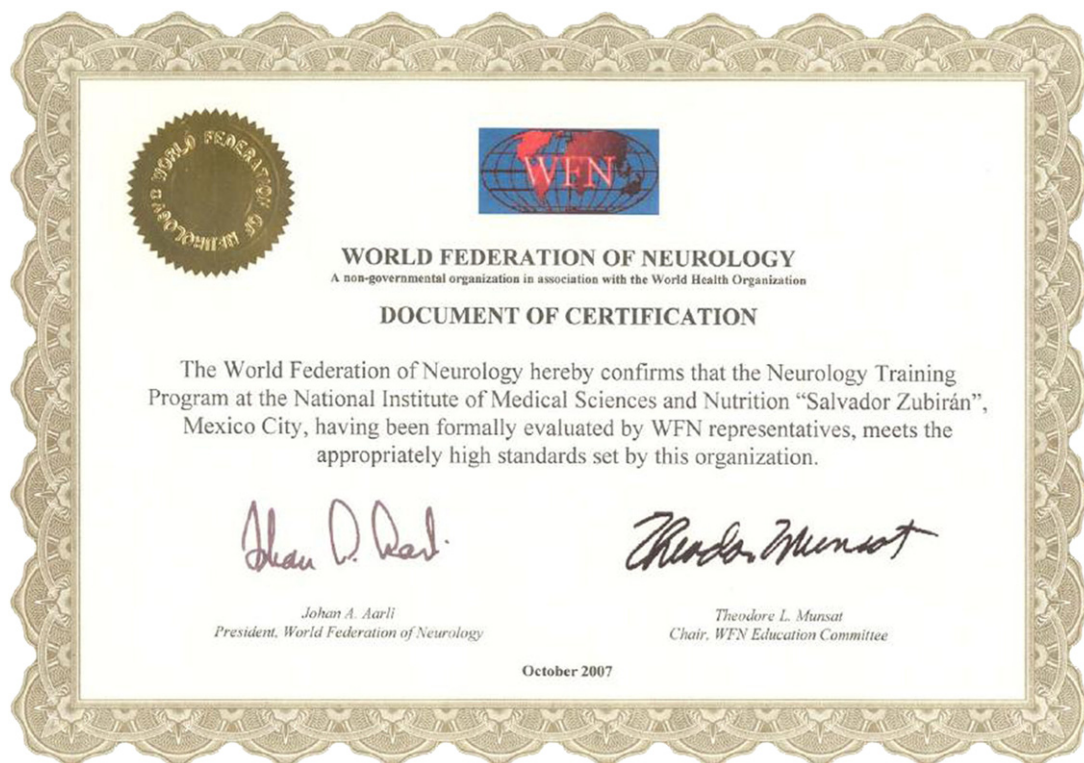


Fig. 1. Example of the WFN document of certification.

5. Conclusion

The Latin America experience with providing assistance to our neurologic colleagues in developing countries has led the WFN to conclude that effective help in improving neurologic care can be provided with modest resource investment in a relatively short period of time. The effective elements of the WFN's programs include a detailed needs assessment by the recipient country, local dedicated and committed leadership, the production of relevant evidence-based educational material, periodic feedback, and periodic reevaluation of goals and strategies.

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