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REPORT ON THE AFRICAN TEACHING TOOLS WORKSHOPS

From September 12–16, 2011, the African Regional Committee (IBRO), the Society for Neuroscience, and the National Academy of Sciences (USA) held the 4th Teaching Tools Workshop at the University of Cape Coast, Ghana. This was part of a series of teaching workshops to introduce a variety of materials for junior faculty in the African continent to assist in teaching neuroscience. In many countries, a lack of trained neurologists, neurosurgeons, and neuroscientists prompted the organizers to provide junior faculty members an overall framework, and the materials needed, for the day-to-day teaching of neuroscience in African countries. Neuroscience, in the view of the Teaching Tools Workshop organizers, includes basic science as well as clinical concepts.

Neuroscience and related disciplines are subjects typically feared and shunned by students of medicine and science in Africa. This is partly because the material is difficult and introductory biology and psychology courses do little to prepare students for neuroscience. Furthermore, the neuroscience curriculum in many African medical schools is not consistent. With uneven neuroscience education for physicians and scientists, compounded by the persisting stigma of many neurologic and psychiatric diseases, inadequate diagnosis and treatment often occurs for these conditions. The Teaching Tools Workshop course and content are designed for junior faculty members currently involved in teaching on the African Continent in neuroscience/neuroanatomy/neurophysiology or a related discipline. This generally includes faculty at universities who have been teaching in a neuroscience related field for 5 years or less.

The current education system in most African countries does not present integrated courses or programs for study of neuroscience, although there are a few exceptions. Topics in neuroscience are presented as components of other courses such as physiology, anatomy, or pharmacology. The Teaching Tools Workshops are designed to present stand-alone basic modules in the neurosciences to be used by teachers to

integrate into a variety of curricula and various teaching contexts. In addition to offering a variety of teaching tools, our workshops stress the theory and practice of effective pedagogy in neuroscience, with the goal of enhancing student learning outcomes. The focus on pedagogy includes the student-faculty attending the workshops and the ability of the attendees to integrate the material and engage students in their home classrooms.

The inaugural workshop was held in Saly, Senegal, in association with a World Federation of Neurology workshop on peripheral nerve disorders. The next workshop was held in Fayoum, Egypt, just prior to the Society of Neuroscientists of Africa (SONA) Conference. The third Teaching Tools Workshop took place in Nairobi, Kenya, in association with the East Africa Conference in Neuroscience.

Attendees of these workshops included students, faculty, young teachers of medical students, medical residents, psychologists, veterinarians, dentists, and basic scientists, as well as several senior faculty members. In Ghana, we accommodated an increased number of participants compared to the previous workshops; local interest was high for many students and faculty living in Ghana. Our mechanism for disseminating information about the upcoming workshops is becoming more effective, prompting increased attendance. Twenty-seven students from 11 different countries attended the Ghana Workshop, including South Africa, Nigeria, Uganda, Morocco, Tanzania, Kenya, Rwanda, Ethiopia, Cameroon, Congo-Brazzaville, and 8 from Ghana. Over the years, we recruited students from 16 African countries. Core faculty members are from Europe, the United States, and Africa, while guest faculty members are often recruited from other African countries. Similar to the second and third Teaching Tools Workshops, the organizers of the fourth Teaching Tools Workshop invited student participants from the previous sessions to submit a lecture on a relevant topic; the person with the outstanding presentation attended as a faculty member. This year we invited a young faculty member

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Figure Students using the Teaching Tools back home in Nigeria



from Tunisia; in past years, we included student faculty from South Africa and Egypt.

Each workshop focuses on a specific topic around which many of the lecture/presentations revolve, while still maintaining a basic level. The topic in Ghana focused on “Fundamentals of Neuroscience.” Themes included the basics of neurons and glia, receptors, the organization of neural pathways and their function, nerve conduction, action potentials, organization of brain centers mediating higher processes, plus several other related topics, including clinical diagnosis. Strategies for enhancing students’ comprehension and retention of these topics are included. In the past, the workshops focused around teaching the “Special Senses” and “Motor Functions and Associated Disorders.”

In the future, we will most likely focus on the “Fundamentals of Neuroscience” because this topic is relevant to most participants. Although an entire neuroscience course cannot be completed during the limited time of our workshop, we intend that each presentation represent an important component of teaching neuroscience. Included are lectures/presentations on basic principles of electrophysiology, neurotransmission, sensation, motor function, and learner-centered teaching. The participants received many additional materials on a USB drive that included (but were not limited to) books, lecture materials, atlases, prepared laboratories on multiple subjects, concepts of team teaching, and multimedia laboratories. Over the 4 workshops, we extended the number of days of each session, which permitted more flexibility, discussion, and reflection by the participants. The extra time allows more attention to basic electrophysiology teaching, neuroanatomy lab-

oratory exercises, and discussion of clinical cases. An important focus of each workshop is the concept of learner-centered teaching, whereby the teacher engages the student in active learning.

The evening sessions comprise another important part of the workshops. They are free-form discussions of how best to implement the components of the workshop. The applicants have the opportunity to evaluate the barriers and challenges in developing a neuroscience curriculum in Africa. They explore how to effectively disseminate the information acquired and—very importantly—how to convince senior faculty to be open to new concepts in faculty development. This includes being open to developing new curricula and novel methods of teaching. These sessions also give the participants the opportunity to discuss broadly the obstacles to higher education due to gender and racial discrimination within African nations. These discussions evolve according to the interests and desires of the participants. The outcomes are positive, giving the participants the drive to implement change when they return to their home universities. In the Ghanaian workshop, we concluded with the vision that development of an integrated neuroscience curriculum, much like those in medical schools in more developed countries, should be possible in many universities within the African continent. Indeed, many of the participants reported that they are integrating the components and principles of the Teaching Tools Workshops into their daily teaching and disseminating this information to their colleagues.

The organizers are optimistic that programs like this can reduce the barriers to teaching neuroscience and related disciplines in Africa. Given a wide

enough distribution, we hope the Teaching Tools Workshops can be applied throughout many African countries to advance neuroscience teaching. Ultimately, we hope that this will have a lasting impact on improving the quality of patient care in Africa by reducing the stigma associated with neurologic and psychiatric disease.

For more information, see <http://dels-old.nas.edu/USNC-IBRO-USCRC/>, www.ibro.org, or sharon.juliano@usuhs.edu.

DISCLOSURE

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