

# **IBRO-ISN Advanced School on the Neurological Aspects of Infectious Diseases: from Basic Science to Clinical Implications**

December, 2016

Faculty of Pharmacy and Pharmaceutical Sciences

Kwame Nkrumah University of Science and Technology

Kumasi, Ghana

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The IBRO-ISN Advanced School on the Neurological Aspects of Infectious Diseases was the first Ghana-hosted scientific training programme to receive funding support from the ISN. This is a testament of the importance that ISN attaches to addressing the increasing global threat of the neurological associations of infectious diseases. Infectious diseases such as the Ebola, tuberculosis, HIV, malaria, and a host of neglected tropical diseases can lead to specific neurological complications. However, studies of these neuro-complications are extremely rare, particularly in African communities where such diseases are rife. The aim of this School was therefore to develop a joint multidisciplinary approach between scientists and clinicians towards initiating measures to addressing critical questions relating to neuro-infectious diseases in Africa in terms of epidemiology, evolutionary history, pathogenesis and therapeutic modalities.

The selection process was highly competitive, with 99 applications initiated and 92 completed (71 males and 21 females) from 15 countries (including three non-African countries). The selection committee had a challenging task due to the high quality of applications received. Selection was on the basis of scientific merit and career potential. Twenty-one delegates from six African countries (Ghana, Egypt, Kenya, Botswana, Ethiopia, and Nigeria) were accepted onto the course but fifteen were able to attend. These delegates had backgrounds in clinical neurology, neuropsychology, infectious disease research (malaria, buruli ulcer, tuberculosis, parasitic neglected tropical diseases), neuropharmacology, bioethics, and drug development.

The IBRO-ISN School focused on research into, and clinical diagnosis and management of, neurological complications in infectious diseases. Specific themes included the: (i) epidemiology and public health burden of infectious diseases in Africa (ii) molecular,

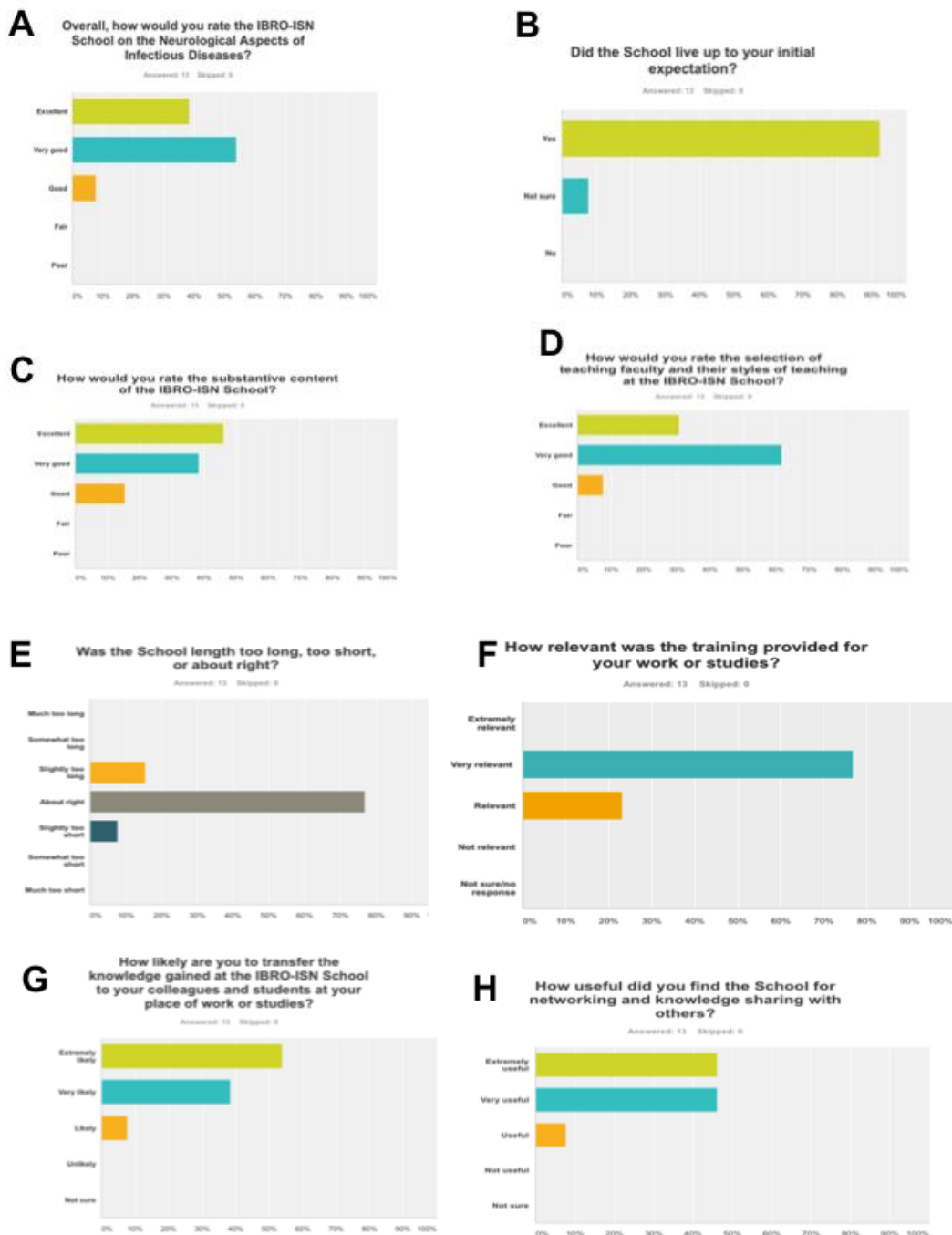
immunological, anatomical and neurological mechanisms of neuro-infections (iii) computational modelling of neuronal activities in health and disease (iv) pharmacotherapy of nervous system infections, and (v) surgical and medical diagnosis and management of nervous system infections. In addition to the clinical and research topics discussed, the delegates and instructors spent a day conducting a tour of, and clinical case studies at, the Neurology department of Ghana's second biggest hospital, the Komfo Ankoye Teaching Hospital in Kumasi, to obtain firsthand evidence on the diversity of neuroinfection cases observed at the hospital. This was followed by a demonstration session on the histopathological examination of clinical neuroinfection cases at the pathology department of the hospital. The consultant pathologist who led the session, supported by his resident medical officers, demonstrated histological brain sectioning and immunopathological staining techniques that may be used to investigate and confirm suspected neuroinfections.

A unique aspect of this School was that all the instructors were based in Africa (3 from Egypt, 1 from South Africa, and 6 from Ghana), which provided a focused opportunity for delegate-instructor networking centering on mentorship, scholarships, research funding and collaboration. The Africa-focused selection of instructors became most important when they (the instructors) had to help shape and improve the research proposals presented by the delegates. These proposed research aimed to cover areas such as HIV/AIDS-associated neurocognitive impairments in Botswana, neurological impairments in Human African Trypanosomiasis, neurological effects of artemether lumefantrine nanoparticle formulations in malaria chemotherapy, bioethical challenges accounting for delays in tuberculosis diagnosis in a Ghanaian municipality, and neurological associations of filariasis and other parasitic infections in a Nigerian state. Since the instructors were well versed in research and clinical practice issues in Africa and were also experienced in research trends and needs on the continent, they were able to offer insightful feedback on the delegates' proposed research activities applying the knowledge gained at the School.

The feedback received from the delegates showed that the School was outstanding in all aspects, including the organisation, content, duration, instruction, networking and the opportunity to propagate the training gained. Overall, 92.31% rated the School as *Excellent* or *Very good* (Fig. 1A), with 92.31% also indicating that the School lived up to

their initial expectation (Fig. 1B). Moreover, the content was graded as *Excellent* or *Very good* by 84.61% of the delegates (Fig. 1C). The selection of teaching faculty and their teaching styles were graded as *Excellent* or *Very good* by 92.31 % of the delegates (Fig. 1D), with the length of the School judged by 76.92 % as being *about right* (Fig. 1E). In addition, 76.92% rated the training provided as being *Very relevant* (with the remaining 23.08% rating it as *Relevant*) to their work or studies (Fig. 1F). In terms of knowledge transfer, 92.31% answered that they were *Extremely likely* or *Very likely* to pass on the knowledge gained to their colleagues (Fig. 1G). Furthermore, 92.30% found the School as an excellent avenue for networking as well as knowledge sharing with colleagues (Fig. 1H).

The ISN funding provided the indispensable support of making it possible to procure economy flight tickets for the instructors and some international delegates. Without the ISN funding, the School would be deprived of the rich experiences of the instructors and the opportunity for promising delegates to attend the School, share their experiences, learn new things, network with colleagues and be able to train their fellows upon return to their places of work. The IBRO-ISN School organisers and beneficiaries jointly express our gratitude to the ISN for this support.



**Fig. 1. Delegates' evaluation of the IBRO-ISN School on the Neurological Aspects of Infectious Diseases.** (A) overall rating of the School (B) assessment of the School's output in relation to the pre-School expectations (C) evaluation of the academic content of the School (D) appraisal of the teaching faculty and their teaching styles (E) rating of the appropriateness of the length of the School (F) relevance of the training provided for the delegates' work or studies (G) likelihood of the trainees to transfer the knowledge gained to their colleagues and students on return home (H) relevance of the IBRO-ISN School as an avenue for networking and knowledge-sharing.

## FINANCIAL REPORT FOR ISN

PASSENGER	FLIGHT ITINERARY	PRICE (GBP)
Prof. Amadi I. Ihunwo	Johannesburg-Accra- Abuja-Johannesburg	805.60
Dr. Ali Shalash	Mansoura-Cairo-Accra- Cairo-Mansoura	395 + 95.40 changes fee
Dr. Basem I. Awad	Mansoura-Cairo-Accra- Cairo-Mansoura	383.00
Dr. Mohamed Bedir Abdelhalim	Mansoura-Cairo-Accra- Cairo-Mansoura	425
Cancellation fee for Dr. Mohamed Salama	-	141
Dr. Wael Mohamed	Kuantan-Kuala Lumpur- Addis Ababa-Accra-Addis Ababa-Kuala Lumpur- Kuantan	1268.10
Dr. Fredrick Maloba	Nairobi-Accra-Nairobi	597.60
Thomas Karikari	Birmingham-Accra- Birmingham	581.33
Prof. Dorothy Yeboah Manu	Accra-Kumasi-Accra	120
<b>TOTAL</b>	<b>GBP-USD Exchange rate = 1.25</b>	<b>4812.03 GBP = 6015.0375 USD</b>

## DETAILS OF INSTRUCTORS AND PARTICIPANTS IN ATTENDANCE

### INSTRUCTORS

Prof. Amadi O. Ihunwo – South Africa – [Amadi.Ihunwo@wits.ac.za](mailto:Amadi.Ihunwo@wits.ac.za)  
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### PARTICIPANTS

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**A group photo of a cross section of the delegates and instructors with Rev. Prof. Charles Ansa (middle in the front roll), the Pro Vice Chancellor of the Kwame Nkrumah University of Science and Technology, after delivering his opening address**



**A cross section of the conference attendees undertaking a case study session at the Neurology department of the Komfo Anokye Teaching Hospital in Kumasi**





**The conference participants at a demonstration session on the histopathological examination of neuroinfection cases at the Pathology department of the Komfo Anokye Teaching Hospital**





**A section of the participants undertook a tourist visit to the Manhyia Palace, the seat of the Asantehene, the King of the Asante Kingdom of Ghana**