VOL. 30 · NO. 4 · August 2015

WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

AFNA, AKUH Team Up for Training, Telemedicine

BY ESMATULLAH HAMED, MD

Trained neurologists are lacking in Afghanistan. Neurological disorders are one of the major disease burdens in this part of the world, and training in this area is scarce. EEG interpretation both in children and adults is a specialized job, and grave errors can occur in patient management when misinterpretations occur.

Esmatullah Hamed

Regular conferences and workshops are major components of the AFNA, AKU collaboration.

The Afghan Neurological Association (AFNA) was established to promote the development of clinical neurology and neurological science throughout the country and to promote friendship among neurologists in Afghanistan and the region.

The AFNA formed collaborations with Aga Khan University Hospital (AKUH) Karachi for assessment and identification of strategic training requirements based on the country's key health care needs. The program is evolving with training arms supporting residents and physicians.

The program not only focuses on the training aspect of physicians, but it also reaches patients in the far parts of Afghanistan with the (FMIC) Medical Institute for Children conducting telemedicine neurology clinics. This effort gives patients access to a modern health facility and expert neurologists in Kabul. To get expert opinions, telemedicine clinics also are conducted with AKUH Karachi.

One of the major components of training and sharing knowledge is through regular conferences and workshops. A major function of such meetings of neurology is to facilitate the sharing of knowledge and to help develop ongoing working relationships that can lead to many advances for all. Although publications and electronic communications provide essential ways to communicate, an international meeting offers unparalleled access to peers whose workplaces and problems are far from home, but may be extremely informative.

Both information sharing and clinical and research collaboration become real possibilities. Clinical collaboration today often takes the form of setting up periodic videoconferences, supplementing impor-

see **COLLABORATION**, *page 9*

INSIDE

FEATURES

Applied Research Group in Neurological Infections Launches

BY KIRAN THAKUR, MD, AND SAROSH KATRAK, MD, DM, FRCP(E)

Neurological infections continue to ravage populations in developing and developed countries. In many regions, central nervous system (CNS) opportunistic infections due to AIDS and tropical diseases remain a major contributor to morbidity and mortality.

In resource-rich settings, where new immunomodulatory medications are being frequently used, CNS infections are being increasingly recognized. There are a growing number of emerging and re-emerging neurotropic infectious diseases, and proper diagnosis and management often require neurologic expertise that may not be available in certain global regions.

Despite significant scientific advances in the field, the burden of undiagnosed neurological infections remains unacceptably high. Major research gaps exist in our understanding of the pathogenesis and cost-effective diagnostics, as well as the CNS penetration and optimal treatment schedules of many neurological infections.

As co-chairs of the newly established applied research group in neurological infections, we are excited to enhance the education, training and research in neurological infections to the global neurology community. The World Federation of Neurology is well positioned to make a major impact in this field through its representation of more than 100 countries, many of which have neurologists with expertise in neurological infections.

We hope to engage experts in neurological infections in collaborative research and educational projects and those interested in improving their knowledge of neurological infectious diseases. We encourage those interested in participating to become members and participate in the educational and research endeavors of our group.

Research Goals

- Surveillance of emerging and re-emerging neurological infections
- Continued vigilance in understanding the burden of CNS opportunistic infection risk in patients on immunomodulatory therapies
- Surveillance of undiagnosed infectious

see **RESEARCH**, *page 10*

WORLD NEUROLOGY, an official publication of the World Federation of Neurology, provides reports from the leadership of the WFN, its member societies, neurologists around the globe and news from the cutting-edge of clinical neurology. Content for *World Neurology* is provided by the World Federation of Neurology and Ascend Integrated Media.

Editorial Correspondence: Send editorial correspondence to *World Neurology*, Dr. Donald H. Silberberg at silberbe@mail.med.upenn.edu.

World Neurology, ISSN: 0899-9465, is published bimonthly by Ascend Integrated Media
6710 W. 121st St., Suite 100
Overland Park, KS, 66209
Phone +1-913-344-1300
Fax: +1-913-344-1497

PUBLISHING PARTNER
Ascend Integrated Media

President and CEO
Barbara Kay

Vice President of Content
Rhonda Wickham

Vice President of eMedia
Scott Harold

Vice President of Sales
Donna Sanford

Project Manager
Amanda Marriott

Art Directors
Lorel Brown
Danielle Hendrickson

Editorial Offices
6710 West 121st St., Suite 100
Overland Park, KS 66209
+1-913-469-1110

World Brain Day 2015 Focuses on Epilepsy

BY MOHAMMAD WASAY, MD, FRCP, FAAN

A World Federation of Neurology (WFN) initiative has transformed into a collaborative movement between the World Health Organization, the International League Against Epilepsy and the International Bureau of Epilepsy. This year, July 22 marked a special day in the history of neurology advocacy.

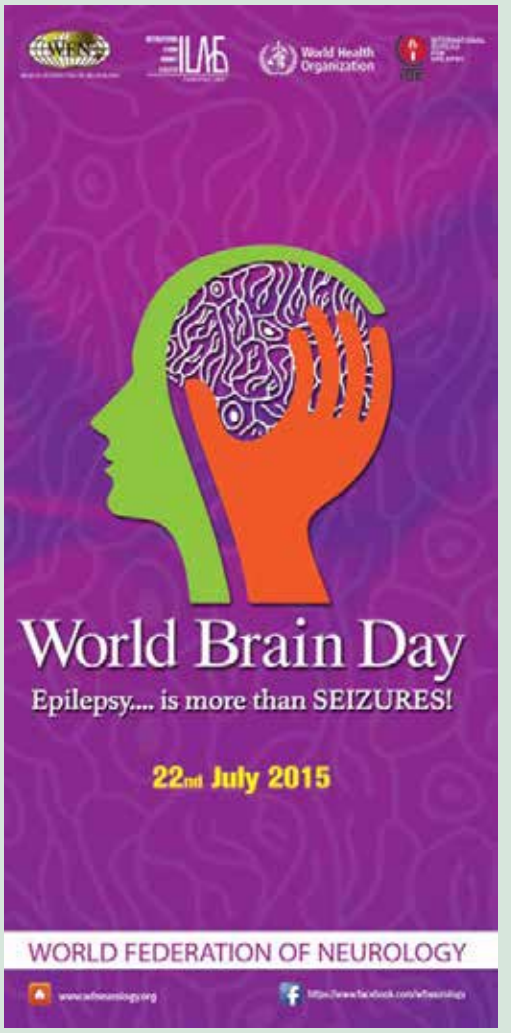
National societies prepared activities, including press conferences, media briefings, CME seminars, public awareness gatherings, awareness walks, epilepsy camps and various other activities for individuals with epilepsy and their families. National neurology societies collaborated with national epilepsy societies and patient support groups for World Brain Day activities.

The WFN Public Awareness and Advocacy Committee prepared a World Brain Day poster, brochure and PowerPoint presentation for media briefing. Banners for display on websites and Facebook pages also were available for promotion of this global activity. Press releases were issued in many languages to all major global newspapers and news agencies.

The main objective of World Brain Day is to promote brain health by preventing and caring for neurological diseases. This year's theme was epilepsy. All of our awareness campaigns were dedicated toward epilepsy care.

The goal was to reach about 100 million people around globe through these multilingual, multimedia campaign jointly organized by WFN, the World Health Organization, International League Against Epilepsy and International Bureau for Epilepsy. •

Mohammad Wasay, MD, FRCP, FAAN, is chair of the Public Awareness and Advocacy Committee.



Cognitive Aging: A Report From the Institute of Medicine

BY DAN G. BLAZER, MD, MPH, PHD, KRISTINE YAFFE, MD, AND JASON KARLAWISH, MD

There is intense individual and public concern over cognitive decline in aging. What may seem like minor forgetfulness when young can result in intense fear of progressive cognitive decline and loss of independence for older individuals. In the U.S. and throughout most of the world, human life expectancy and the number of older adults continues to grow. Ongoing analysis and planning, including inventions that promote healthy aging and cognition, are crucial. Cognitive decline impacts individuals and families as well as society. Treatment and supportive measures consume a high portion of health care dollars and resources by health care providers, social and other services, and public health.

The Institute of Medicine convened a committee in 2014 chaired by Dr. Dan Blazer, a renowned geriatric psychiatrist, of 16 experts from a wide range of disciplines to study and make recommendations regarding the public health aspects of cognitive aging (CA). Dr. Blazer authored the report. By design, the committee did not focus on Alzheimer's disease or other dementias or on basic science. The authors distinguished CA from cognitive impairment.

The CA report was written for a broad audience, including the general public; health care and human services providers; local, state and national policy makers; researchers; foundations and nonprofit organizations. The 2015 full report and a briefer version can be viewed at: http://iom.nationalacademies.org/Reports/2015/Cognitive-Aging.

The multifaceted recommendations included definitions and terminology for CA, epidemiology and surveillance, prevention and intervention opportunities, education of health professionals and the public, as well as increasing public awareness.

Terminology for cognition is variable and not yet standardized. The authors defined cognitions as "the mental functions involved in attention, thinking, understanding, learning, remembering, solving problems and making decisions that are needed for individuals to successfully negotiate the world." They point out that cognition is multidimensional and involves more than memory alone. CA is a lifelong process of "gradual, ongoing, yet highly variable changes in cognitive functions that occur as people get older." Cognitive health was "exemplified by an individual who maintains his or her optimal cognitive function with age."

Key features of CA are:

1. Inherence in humans and animals
2. Occurs across the spectrum of individuals
3. Highly dynamic variable process within and between individuals
4. Biology is just beginning to be understood but involves structural and functional brain changes.

CA is "not a clinically defined neurological or psychiatric disease such as Alzheimer's disease and does not inevitably lead to neuronal death and neurodegenerative dementia (such as Alzheimer's disease). Risk and protective factors include health and environmental factors throughout the lifespan influencing cognitive aging; modifiable and nonmodifiable factors (genetics, culture, education, medical comorbidities, acute illness, physical activity and other health behaviors) and the influence of development (beginning in utero, infancy and childhood) on cognitive aging. The recognition of developmental influences on cognition later in life is a newer concept.

The authors discuss the shortcomings of normative data and recommend the development of better tools to assess CA and cognitive trajectories. "Cognitive aging is not easily defined by a clear threshold on cognitive tests since many factors, including culture, occupation, education, environmental context and health variables (e.g., medications, delirium) influence test performance and norms." The authors explained that for an individual, comparing cognitive performance is best assessed at several points in time.

Cognitive aging also was characterized by an impact on daily life:

1. Day-to-day functions, such as driving, making financial and health care decisions, and understanding instructions given by a health care professional, may be affected.
2. Experience, expertise and environmental support aides (e.g., lists) can help compensate for declines in cognition.
3. The challenges of cognitive aging may

see **COGNITIVE AGING**, *page 11*

PRESIDENT'S COLUMN

A Willingness to Help

RAAD SHAKIR

Summer in the Northern Hemisphere is a holiday season, and it is a time for reflection on what has happened during the first half of the year. The theme of this column is the willingness of many of our neurological societies to lend a hand to those hard-working colleagues who practice in less prosperous parts of the world.

There are two endeavors, which I would like to concentrate upon. There is a huge need for exposure to modern technology and method of practice, which is not available in the developing world. This can be fulfilled by short-term visits to centers of excellence. The WFN started enquiring from member societies to see the feasibility of such programs and, as importantly, to explore the possibility of funding. The response thus far has been most rewarding. It started with the Turkish Neurological Society fully funding a four- to six-week visit for two neurologists from Africa nominated by the WFN. The program is now in its third year and was soon followed by the Austrian and the Norwegian neurological societies.

This just reinforces the purpose of the WFN in being a catalyst for training and international collaboration. Our three member societies have provided the funding and the time to welcome young African neurologists to their neurological departments and provide them with intense exposure to the latest technologies and guide them in ways of improving their practices in their home departments.

Members of the neurophysiology training team in Rabat, Morocco, with Prof. Mostafa Elaloui, head of department (second row, far left) and Mohamed Albakay Mali, the first WFN fellow (second row, second from left).

The WFN is in negotiation with other societies in the developed world to follow suit and take more young individuals not only from Africa, but also from all other parts of the world. The program can perhaps be best applied within regions or partnering two or three of the six regions of the WFN. This is the function of the Regional Liaison Committee of the WFN. Perhaps the best working example of regional department-to-department visits is the European region, and the European Academy of Neurology has shown its willingness to extend the program across the Mediterranean to involve the EAN associate member countries. I have to say that such acts of real interaction in international training only demonstrate the openness and generosity of neurological associations in aiding neurologists who just happen to be in a part of the world which lacks funding and organization.

If we take this further, reciprocity is perhaps one of the answers. Many young neurology trainees from the more developed world would love the opportunity to train for short periods in the developing world. This will enrich their experiences both professionally and socially. Although this is now widely practiced, it is mostly, if not exclusively, on a personal basis. Committing neurological societies in the developing world to be involved and responsible as hosts would be most helpful to those who need guidance when joining a neurological service in the developing world. This double link is the aim of the WFN.

The second activity, which is most important, is training neurologists on their own continents. This has started in Africa by the Moroccan Society of Neurology. Rabat was visited and accredited as a WFN Training Center, and the first intake of training started in September 2014 (left). *World Neurology* is advertising for the second training intake this year. Again the generosity and willingness to help is most evident. The University of Mohammed V in Rabat is offering the training for free with no tuition fees required. The WFN is providing living expenses for trainees. This has worked well and should continue to prosper. What is on offer is either a fully certified four-year training program culminating in an exit examination and a diploma from the University of Rabat or a one-year

see **WILLINGNESS TO HELP**, *page 9*

WFN Education Committee accreditation visit at Qasr El Aini University Hospital in Cairo, Egypt.

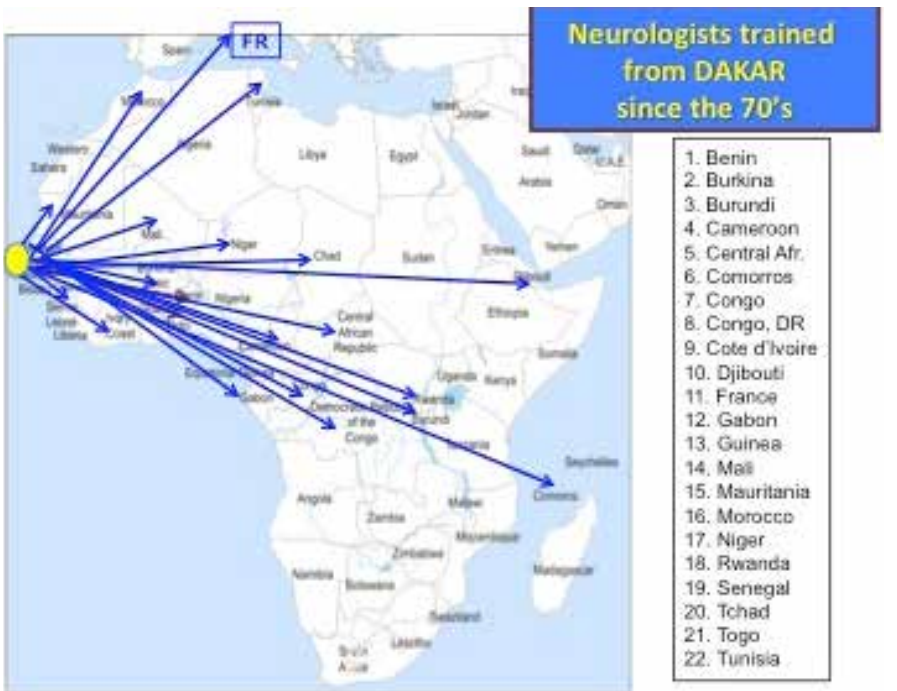


Figure 1. African trainees in Dakar, Senegal.

Figure 2. African neurologists trained in Cape Town, South Africa.

The World Federation of Neurology Headquarters Office will relocate to new premises in London on Thursday, Aug. 6.

The new address is:
Chester House
Fulham Green
81-83 Fulham High St.
London SW6 3JA
United Kingdom
Tel.: +44 (0)20 3542 1657/1658
Fax: +44 (0)20 3542 1301

Conclusion Report on the Congress of PAUNS and the Saudi Neurology Society Meeting

From left: Prof. El Tammawy, previous president of the Pan Arab Union of Neurological Societies (PAUNS) president; Prof. Bohlega (current PAUNS president); and Prof. Adnan Awada, Lebanese Neurology Society president, at the Gala Dinner.

The 14th Congress of the Pan Arab Union of Neurological Societies (PAUNS) and the 22nd Saudi Neurology Society Meeting was held from Jan. 22-24 at the Hilton Jeddah in Saudi Arabia. The great success of the last PAUNS meeting in Egypt in March 2013 paved the way to move the flag to Saudi Arabia with the hope that all would enjoy the highly scientific and learning social activities planned for the event. The theme for the congress was "Broadening the Horizon of Neurology in the Arab World."

PAUNS aims to organize a unique and important neurology conference in order to present the latest surgical techniques, research and management strategies in neurology. In addition to the presentations by thought leaders from around the world, the conference brings physicians and other clinicians together in networking opportunities that allow them to share their insights. The purpose of the conference also is to share state-of-the-art technology and techniques with clinicians in an effort to improve patient outcomes. It also provided a forum for experts and opinion leaders to share their findings and showcase the latest technologies and innovations in the field, as well as highlight the importance of advancements in neurology and medicine.

Neurological societies from the Arab world exchanged knowledge and experience about practice, education and academic endeavors for a brighter future. One session was devoted to address neurology in the Arab world. In this session, Prof. Raad Shakir, of the United Kingdom and president of the World Federation of Neurology, presented "Burden of Neurological Disorders in the Arab World." Other talks included "Neurology Research in the Arab World: Opportunities and Challenges." There were joint symposia with European Academy of Neurology, and speakers from Europe and the Middle East took turns presenting and addressing queries from the participants. A number of ongoing research results also were presented.

The meeting was open to all registrants (854 attendees) to ensure adequate exposure to the workshops for the delegates. Distinguished guest speakers and world-renowned neurologists also were in attendance, including as Prof. Gunther Deuschl, Germany and president of European Academy of Neurology; Prof. Dirk Dressler, Germany; Prof. Aziz Shaibani, United States; Prof. Sean Hill, Switzerland; Prof. Helmuth Steinmetz, Germany, Prof. Dieter Schmidt, Germany; Dr. Edward Cupler, United States and Saudi Arabia; Prof. Messoud Ashina, Denmark; Dr. Hamidon Basri, Malaysia; Dr. Suhail Alrukn, United Arab Emirates; Prof. Bassem Yamout, Lebanon; Prof. Maurice Dhadaleh, Jordan; and many more.

The 14th Congress of PAUNS and the 22nd Saudi Neurology Society Meeting explored the latest surgical techniques, research and management strategies in neurology.

The scientific program consisted of workshops on headache, neurophysiology, movement disorder, transcranial doppler and long-term EEG monitoring), satellite symposia and abstract presentations. Two well-known neurologists from the Middle East, Prof. Aziz Shaibani, who is now based in Houston, and Prof. Hani T.S. Benamer, who is based in the United Kingdom, were given recognition for the successful books they have written:

1. A Video Atlas of Neuromuscular Disorders, by Prof. Aziz Shaibani
2. Neurological Disorders in the Arab World, by Prof. Hani T.S. Benamer

> **PAUNS aims to organize a unique and important neurology conference in order to present the latest surgical techniques, research and management strategies in neurology.**

The PAUNS Board Meeting was held to elect the following new board members:

President: Saeed A. Bohlega, Saudi Arabia. Secretary General: Waleed Khoja, Saudi Arabia. Vice-Presidents: Mostafa El Alawi Faris, Morocco; Mohammad Abdul Ghani, Egypt; Abdallah Younes, Jordan; Rashad Abdul-Ghani, Yemen; and Chakir Khamis, Lebanon. Treasurer: Adel Al-Jishi, Bahrain.

The Gala Dinner was held at the Park Hyatt Hotel garden facing the famous King Fahad Fountain, the highest man-made fountain in the world.

The success of these events would not have been possible without the vision and hard work of the of the Organizing Committee, our colleagues, strong support of our sponsors, and, of course, King Faisal Specialist Hospital and Research Centre with the institution's leadership headed by Chief Executive Officer His Excellency Dr. Qasim Al Qasabi. •

Urban Air Pollution in Children and Young Adults

Environmental Neurology, Neurodegeneration, Air Pollution and Young Urbanites

BY LILLIAN CALDERÓN-GARCIDUEÑAS, MA, MD, PHD, AND JACQUES REIS, MD

Ambient air pollution is a key disease risk factor producing detrimental health effects on millions of people, particularly children and young adults, across the global community. The neurological effects associated with sustained exposures to concentrations of outdoor air pollutants above the current international air quality standards are an important issue for people living in megacities and small towns around the world and those involved in high-risk occupational settings. Outdoor air pollutants are complex mixtures of particulate matter (PM), gases, and organic and inorganic compounds emitted directly into the air from combustion of fossil fuels, such as gas, oil, coal and fires.

New York; Toronto; Salt Lake City; Fairbanks, Alaska; Provo, Utah; the Los Angeles-South Coast Air Basin; Paris; La Oroya, Peru; Santiago, Chile; New Delhi; Beijing; Karachi, Pakistan; Krakow, Poland; Venice, Italy; Frankfurt, Germany; Brussels; and Mexico City residents share their main sources of pollution: transport, industry and heating. Particulate matter fine particles larger than 100 nm and smaller than 2.5 μm ($PM_{2.5}$) and ultrafine PM <100 nm are target sizes for brain effects, and their main sources are road traffic and industrial emissions.

The detrimental impact of air pollution upon the brain in development is critical, as are the long-term potential neurodegenerative consequences upon children and young adults. Air pollution also is a risk factor in multiple sclerosis. We will discuss these topics in our T 20 Thursday, Nov. 5, 2015, Environmental Environmental Neurology XII Congress of World Neurology in Santiago, Chile.

Oxidative stress and brisk inflammatory responses are important features present in animal models and in humans exposed to polluted environments with diverse particulate matter chemistry as well as high concentrations of criteria pollutants.

Neuroinflammation is a key component of air pollution exposures. Megacity children exhibit significant frontal lobe imbalance in genes essential for inflammation, innate and adaptive immune responses, oxidative stress, cell proliferation and apoptosis. The up-regulation of potent inflammatory mediators involves supra and infratentorial regions and cranial nerves, including olfactory bulb, frontal cortex, substantia nigrae and the vagus.

Breakdown of the nasal, olfactory, gastrointestinal, alveolar-capillary and the brain-blood barriers has been extensively documented. There is evidence the GI tract barrier also is compromised in the air pollution setting, and recent research links inflammatory bowel diseases, changes in gut microbiome and abdominal pain with air pollution. The GI breakdown likely impacts neuronal enteric populations, and PM could reach the vagus and the brainstem. We suggested that damage to epithelial and endothelial barriers associated with air pollution exposures is a robust trigger of tight junction and neural antibodies.

Early dysregulated neuroinflammation, brain microvascular damage, production of potent vasoconstrictors, and perturbations in the integrity of the neurovascular unit are seen in children and young adults exposed to urban air pollution. The accumulation of misfolded hyperphosphorylated tau, alpha-synuclein and beta-amyloid coincides with the anatomical distribution observed in the early stages of both Alzheimer's and Parkinson's diseases.

Major depressive episodes are linked to neuroinflammation and systemic markers of inflammation. Epidemiological, cognitive, structural, and functional neuroimaging and mechanistic studies into the association between air pollution exposures and the development of neuroinflammation and neurodegeneration in children are of pressing importance for public health.

Air pollution has become a key issue in public health and in environmental sciences.

What can we do? Knowledge of the issue is imperative. Improvement of air quality is a must, and neuroprevention should be at the core of our efforts as health care providers. •

Lillian Calderón-Garcidueñas, MA, MD, PhD, is with the University of Montana, Misoula, and Jacques Reis, MD, is with the University Hospitals of Strasbourg, France.

EAPS 2014 Welcomes Six European Pediatric Societies

BY TAMAR EDIBERIDZE

The fifth Congress of the European Academic Paediatric Societies (EAPS) 2014, was held Oct. 17-21, 2014, in Barcelona, Spain. The Congress was organized by the three societies, the European Academy of Paediatrics, European Society for Paediatric Research and European Society of Paediatric and Neonatal Intensive Care (ESPNIC), including the Nurses Section of ESPNIC.

In addition, for EAPS 2014, six other important European pediatric societies accepted the invitation to join as collaborating societies: the European Paediatric Neurology Society, Paediatric Assembly of European Respiratory Society, Association for European Paediatric and Congenital Cardiology, Union of European Neonatal & Perinatal Societies, European Society for Paediatric Gastroenterology, Hepatology and Nutrition, and European Society for Paediatric Infectious Diseases.

It was an honor and pleasure to attend the congress and present the poster with the preliminary results of our research, "Sleep Complaints Among the Neurologically Impaired Children: Questionnaire Based Study." We had the great opportunity to receive remarks and advice from experts and colleagues from Europe about the study design and data interpretation.

In addition, I want to point out that I attend the congress with my colleague, Nino Gogatishvili, MD, who also was awarded a World Federation of Neurology travel grant. She also had an excellent poster presentation during the poster session. As I know you received her thanksgiving letter in 2014. Overall, we feel our participation was successful for our delegation. •

Tamar Ediberidze

Mark Your Calendars 2015

31st International Epilepsy Congress
Sept. 5-9
Istanbul

American Neurological Association 140th Annual Meeting 2015
Sept. 27–29
Chicago

Congress of the European Committee for Treatment and Research in Multiple Sclerosis 2015
Oct. 7-10
Barcelona, Spain

XXII World Congress of Neurology
Oct. 31-Nov. 5
Santiago, Chile

5th International Conference on Neurology & Epidemiology
Nov. 18-20
Griffith University, Gold Coast, Australia

CANDIDATE RECOMMENDATIONS FOR WFN ELECTION 2015

The Nominating Committee of the World Federation of Neurology (WFN), having invited nominations for one treasurer and one elected trustee post, both to be filled with effect from the 2015 Annual General Meeting (Council of Delegates) on Nov. 1, recommended the following candidates to the membership:

Treasurer
- Prof. Richard Stark (Australia)
- Prof. Andreas Steck (Switzerland)

Elected Trustee
- Prof. Morris Freedman (Canada)
- Prof. Steven Lewis (United States)

In accordance with Article 6.3 of the WFN Memorandum & Articles of Association, allowing for additional candidates who are supported by five or more authorized delegates from other member societies, Dr. Daniel Truong (United States) also will contest the post of elected trustee.

By Any Other Name: An Autobiography, by F. Clifford Rose, is now available from Amazon, both in paperback and Kindle editions.

Worldwide Variations in Brain Death Declaration

BY TORREY BOLAND, MD

Despite the publication of evidence-based practice parameters for the declaration of brain death by the American Academy of Neurology (AAN) in 1995 and updated in 2010, there remains much variation worldwide in how the actual determination of brain death is performed. Not only does the practice, but also the perceptions of brain death, vary widely across countries.


Torrey Boland

In 2002, an international review identified significant variations in the practice of determining brain death. However, studies such as this have reported primarily on higher-income regions.

Earlier this year, several researchers reported in *Neurology* the results of the largest study to date attempting to assess and characterize both the practices in determination of brain death worldwide as well as the perceptions of brain death among countries. This study aimed to gather data not only from high-income countries, but to gather a comprehensive worldwide dataset. It confirmed that significant variations continue to exist worldwide in both the perception and practice of declaration of brain death. This lack of agreement could become challenging as organ transplantation networks are becoming increasingly internationalized, and supports the need for a stronger international consensus on brain death.

> The authors conducted an electronic survey, which was distributed to individuals who practiced medicine and had interactions with patients who could become brain dead.

The authors conducted an electronic survey, which was distributed to individuals who practiced medicine and had interactions with patients who could become brain dead. The target participants comprised physicians in 123 countries. The survey sought to query individuals with knowledge and expertise in brain death within each country. Included in the survey were members of the Neurocritical Care Society; country representatives of the World Federation of Neurology, who were asked to either complete the survey or forward it to appropriate colleagues, authors of publications on brain death; and international personal contacts of the authors. Responses were tallied from 91 countries, including the African, Eastern Mediterranean, European, Pan-American, Southeast Asian and Western Pacific World Health Organization regions.

The findings of the study showed that there remains significant variability in both the perception of brain death as a concept as well as dissimilarity in the practice of the declaration of brain death. Most countries noted a legal provision (70 percent) and an institutional protocol for the declaration of brain death (77 percent), but high-income countries were significantly more likely to have an institutional protocol than low-income countries.

In addition, the majority of countries in Africa lacked institutional brain death guidelines. Legal provisions for brain death were more likely in countries with organized transplant networks, even when adjusting for income. This may be related to advances in medical technology, which has led to an increase in organ transplantation in more middle- and low-income countries. This rise in transplantation indicates a corresponding need for understanding of the concept of brain death.

A small portion of countries (14 percent) reported a lack of brain death declarations in their hospitals, citing a lack of intensive care or advanced technology, lack of expertise in brain death, and uncertainties regarding the concept of brain death. This may represent a need for further

see **BRAIN DEATH**, *page 11*

Editor's Update and Selected Articles From the *Journal of the Neurological Sciences*

BY JOHN D. ENGLAND, MD

The editorial staffs of the *Journal of the Neurological Sciences (JNS)* and our publisher, Elsevier, have strived to enhance the quality of the journal. I am pleased to inform you that Elsevier soon will introduce the Journal Workflow Modernization Programme. This new workflow program, which Elsevier has named LeMans, will result in authors receiving proofs of their articles within 24 to 72 hours after acceptance. The LeMans program will significantly decrease the production time for all of our accepted articles. As an editor, I know that authors desire to see their articles published as quickly as possible, and this new feature will accelerate the publication process.


John D. England

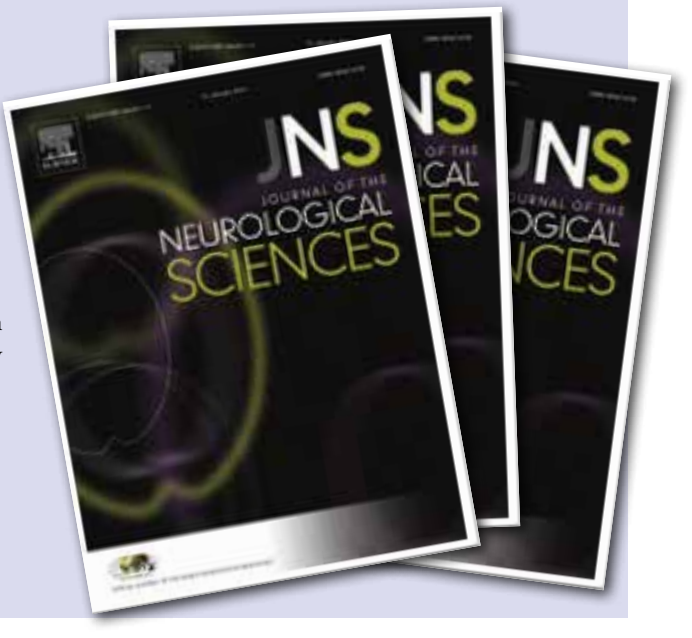
Additional steps for enhancing publication such, as the introduction of Article-Based Publishing (ABP) are planned. ABP, which should be introduced in late 2015, will post articles online as soon as they are finalized without waiting for an entire journal issue to be compiled.

All of these advancements reflect the ongoing transition from print to electronic publishing. *JNS*, like many Elsevier journals, is moving quickly toward a totally electronic publishing platform.

In our ongoing attempt to enhance accessibility of *JNS* articles for members of the World Federation of Neurology (WFN), we have selected two more free-access articles, which are profiled in this issue of *World Neurology*.

1. Stephanie Brown and Andrew Stanfield provide an excellent review of the fragile X tremor ataxia syndrome (FXTAS), which is an increasingly recognized movement disorder. Affected individuals carry the permutation allele of the FMR1 gene. This permutation is an expansion of the nontranslated 5' CGG repeat region of FMR1 from the normal range, which is less than 45 repeats to between 55 and 200 repeats. Affected individuals are usually men over 50 years of age who have progressive symptoms of tremor, ataxia and cognitive decline. Other manifestations include Parkinsonism, peripheral neuropathy, autonomic dysfunction and endocrine changes. The authors detail the clinical, molecular and neuroimaging manifestations of the disease. They emphasize the neuroimaging characteristics of FXTAS, which include increased T2 signal intensity in the middle cerebellar peduncle (MCP sign), thinning of the corpus callosum and white matter atrophy.
   Brown SSG, Stanfield AC. Fragile X premutation carriers: A systematic review of neuroimaging findings. J Neurol Sci 2015;352:19-28.
2. Alexander Slade and Sinisa Stanic reviewed the literature regarding the usefulness of salivary gland irradiation for managing sialorrhea in patients with amyotrophic lateral sclerosis (ALS). Many patients with ALS have difficulty controlling salivary secretions. Although oral anticholinergic medications or botulinum toxin injected into the salivary glands can be helpful, patient intolerance or unacceptable adverse effects may occur. This review concludes that the majority of ALS patients with sialorrhea respond well to salivary gland irradiation and experience minimal side effects. Thus, clinicians should consider this treatment option for patients with ALS who are troubled by excessive salivation.
   Slade A, Stanic S. Managing excessive saliva with salivary gland irradiation in patients with amyotrophic lateral sclerosis. J Neurol Sci 2015;352:34-36.

John D. England, MD, is editor-in-chief of the *Journal of the Neurological Sciences*.



Report on the UEMS/EBN/EAN Examination in Berlin

BY WOLFGANG GRISOLD

The seventh European Board Examination in Neurology was held June 19 in Berlin, one day prior to the 1st Congress of the European Academy of Neurology (EAN) (http://www.uems-neuroboard.org/). There were observers from the World Federation of Neurology, including from Prof. Wolfgang Grisold.

The examination included a written part, with 80 multiple-choice questions (MCQ) and 50 extended matching questions (EMQ). These questions were developed by European specialist sections and were prepared by education standards in an extensive review process.

As a new feature, the candidates had to prepare an essay on a neurology-related public health or ethics related topic. This topic was presented by each candidate and orally discussed with the examiners. In addition, a critical appraisal of a neurological topic (CAT) had to be prepared and also was orally discussed with the examiners.

Topics of the essays were diverse and covered disease-based topics, such as driving with epilepsy or work- and health system-related topics. The CATs were mainly directed at diseases and therapies, and the presenters were expected to provide a qualified and thorough review on the topic chosen.

The examination was well organized and started with the MCQ examination. The rest of the day was spent with parallel sessions of EMQ testing and oral presentations. Two examiners who discussed the presentations and also asked questions in regard to the CAT took the oral presentations. Examiners were paired and selected with regard to language proficiency.

Successful candidates and examiners.

The results of the written examinations and the oral judgments were analyzed on the same day, and the results were presented on the same day.

Eighty-five candidates showed their interest, 72 sent submissions, 63 showed up, and 55 passed.

The following countries participated: Europe and Turkey (34): Austria, Belgium, Italy, Portugal, UK, Germany, Slowenia, Sweden, Greece and Turkey; Non-Europeans (29): Israel, Saudi Arabia, Egypt, Denmark, Pakistan, India, Iraq, Morocco, Tunisia, Cameroon and South Africa.

It was the seventh examination of the UEMS/EBN, now with the newly created EAN. This examination introduced the structured essay and CAT, which replaced the prior self-presentation. This new development added a new dimension to the examination, as the candidates were expected to give structured opinions on topics related to diseases and health as well as ethical topics.

At present, the European Board Examination is a sign of excellence, and it is hoped that increasingly European countries will accept the European Board Examination as equal to the national examination, or even replace their national examination with the European Board exam. •

Wolfgang Grisold is secretary general and treasurer of the World Federation of Neurology.

As a new feature the candidates had to prepare an essay on a neurology-related public health or ethics related topic. This topic was presented by each candidate and orally discussed with the examiners.

Report of the Cairo Department Visit

BY STEVEN LEWIS AND WOLFGANG GRISOLD

The department of neurology of Cairo University will be a World Federation of Neurology (WFN) Teaching Center for neurology training beginning in 2015. On March 20, the dean and departmental leadership and faculty welcomed an educational visiting committee of Steven Lewis, chair of the Education Committee; Wolfgang Grisold, co-chair and secretary general; and Riadh Goudier trustee and president of the Panafrican Society.

As part of the application to become a WFN Teaching Center, and prior to the site visit, the department had been asked to write structured reports on their clinical teaching program, including detailed written surveys from faculty members and trainees.

On the day of the visit, the faculties of the clinical and research departments were introduced, followed by personal interviews by the visiting committee with trainees and teachers. These interviews focused on work conditions and cooperation within the department and the hospital. A formal round through the wards followed these interviews. Patient wards, investigational laboratories and outpatient facilities were explained and inspected by the WFN committee. In a final conference, an exchange of opinions, discussion of structure and academic discussions took place. Subsequently, the trustees of the WFN received a report from the site visit team recommending the establishment of a WFN Teaching Center in Cairo.

WFN Teaching Centers are being established to improve training of neurologists in Africa, and Cairo will join the first Teaching Center in Rabat, Morocco, which has been running a WFN teaching program since 2014. The WFN is convinced that supporting high-quality Teaching Centers in Africa will improve the quality of training neurologists and lead to additional high-quality institutions of training in neurology in Africa.

The WFN is grateful to the leadership and faculty of the department of neurology at Cairo University for its commitment to improving the training of neurologists within Africa, and I look forward to a long and successful collaboration in these efforts. •

Prof. Mohamed El Tamawy of the department of neurology at Cairo University.

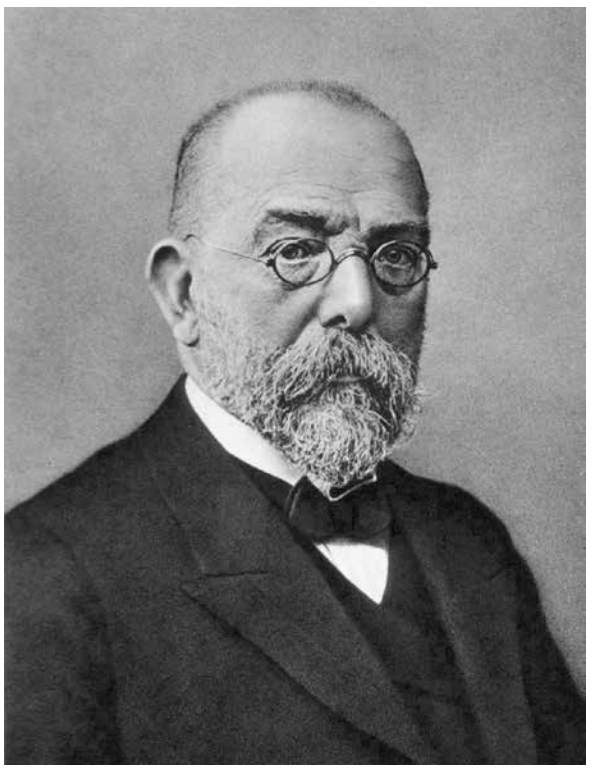
Armauer Hansen: The Controversy Surrounding his Unethical Human-to-Human Leprosy Transmission Experiment

BY DOUGLAS J. LANSKA, MD, MS, MSPH, FAAN

In 1873, Norwegian physician Gerhard Armauer Hansen (1841-1912) [below] discovered rod-shaped bodies — *Mycobacterium leprae* — in leprous nodules. Initially unable to stain these bodies, he only tentatively suggested that they resembled bacteria, which led to a later priority dispute with Albert Neisser (1855-1916) when Neisser was able to stain the organisms and then claimed priority for the discovery. Although Hansen was convinced that leprosy was an infectious disorder, he was unable to cultivate the organism and unable to transmit the disease to animals, despite 12 failed attempts to transmit the disease to rabbits by inoculation.

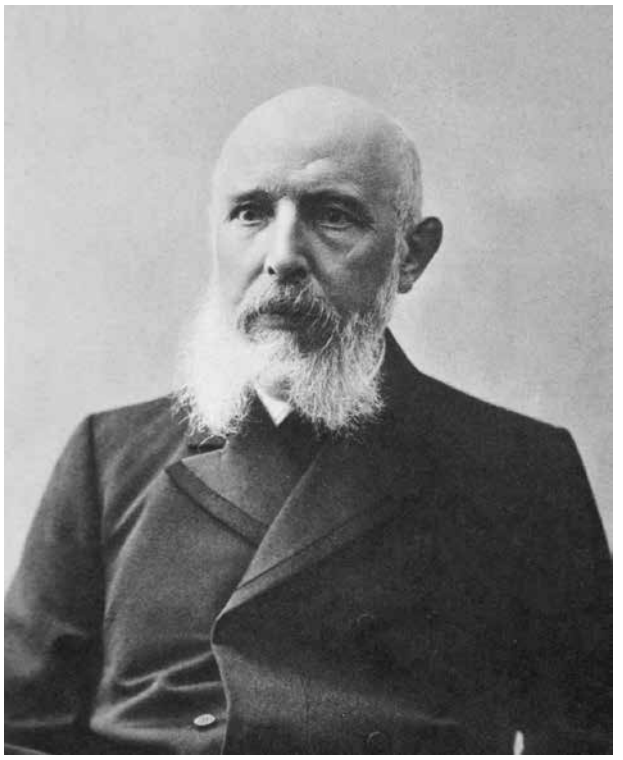
Douglas Lanska

In 1875, Hansen had been appointed as medical officer of health for leprosy in Norway and as the resident physician at the Bergen Leprosy Hospital. After corresponding with German physician and pioneering microbiologist Robert Koch (1843-1910) in Breslau, Hansen decided to attempt human-to-human inoculations, and specifically to inoculate leprous tissue from a patient with lepromatous (multibacillary) leprosy into patients with tuberculoid (paucibacillary) leprosy [below right] to determine whether he could produce manifestations of lepromatous leprosy.



Gerhard Armauer Hansen. (Public domain. Courtesy of the U.S. National Library of Medicine)

While Hansen had already achieved some professional renown for his studies of leprosy, his patients found him aloof and high-handed. On Nov. 3, 1879, while on rounds at the Bergen Leprosy Hospital, Hansen instructed a 33-year-old patient with the "anesthetic type of leprosy," Kari Nielsdatter Spidsøen, to accompany him to his office as he indicated he wanted to speak to her. There, she saw that he had a sharp-cutting instrument in his hand which he brought up to her eye, while she held him off with her arms. After she was calmed down by one of the other doctors in the room, Hansen succeeded in his goal of inoculating leprous material from another patient under the conjunctiva of her eye with a cataract knife.



Robert Koch. Public domain. Courtesy of the U.S. National Library of Medicine.

The patient reported this to the hospital pastor, Pastor Grönvold, who in turn forwarded the complaints to legal authorities who charged him with causing bodily harm to an innocent patient. According to the transcript of the court proceedings, Hansen "admitted that he was not justified in carrying out the operation as he had neither obtained her permission in advance, nor told her of his aim in doing it. He had omitted seeking informed consent for the procedure "as he took for granted that the [patient] would not regard the experiment from his point of view, and if something happened [e.g., a lepromatous lesion developed that might threaten her vision], he was sure he could get the affection under control."

Despite the criminal complaint against him, Hansen boldly expressed to the court his self-righteous belief that he was justified in these actions: … even if the subject should have some pain, because he had chosen a subject who had suffered from leprosy for many years, and therefore would not be exposed to a new disease. He was quite sure that there was no risk of loss of vision, even if the inoculation should have resulted in a nodule. He himself had several times extirpated nodules from eyes without any trouble, and had succeeded in saving the eyesight. … The great scientific and national importance of finding the answer to the question [of the transmissibility of leprosy] had therefore forced him to act as he did.

Although Hansen's colleagues supported him with various post hoc justifications, it was clear to the court (with Hansen's own admission) that, in his zealousness to prove the infectious nature of leprosy, he had misused his position of authority by trying to intentionally transmit a disease to a patient placed in his care without the patient's consent.

Hansen was convicted and in consequence lost his post at the Leprosy Hospital in Bergen, but in a legal-political compromise he retained his position as chief medical officer for leprosy in Norway. The case had little effect, though, on Hansen's professional reputation, and he continued with his scientific studies. Nevertheless, as Norwegian microbiologist and historian Thomas M. Vogelsang (1896-1977) concluded, the legal decision emphasized "that even a celebrated scientist is bound to obey the law of the land, and that it is the court's duty to protect every citizen also against encroachments from more influential persons." •

Douglas J. Lanska, MD, MS, MSPH, FAAN, is with the Veterans Affairs Medical Center, Great Lakes Veterans Affairs Healthcare System, Tomah, Wisconsin.

Peter J. Koehler is the editor of this history column. He is neurologist at Atrium Medical Centre, Heerlen, the Netherlands. Visit his website at www.neurohistory.nl.

References

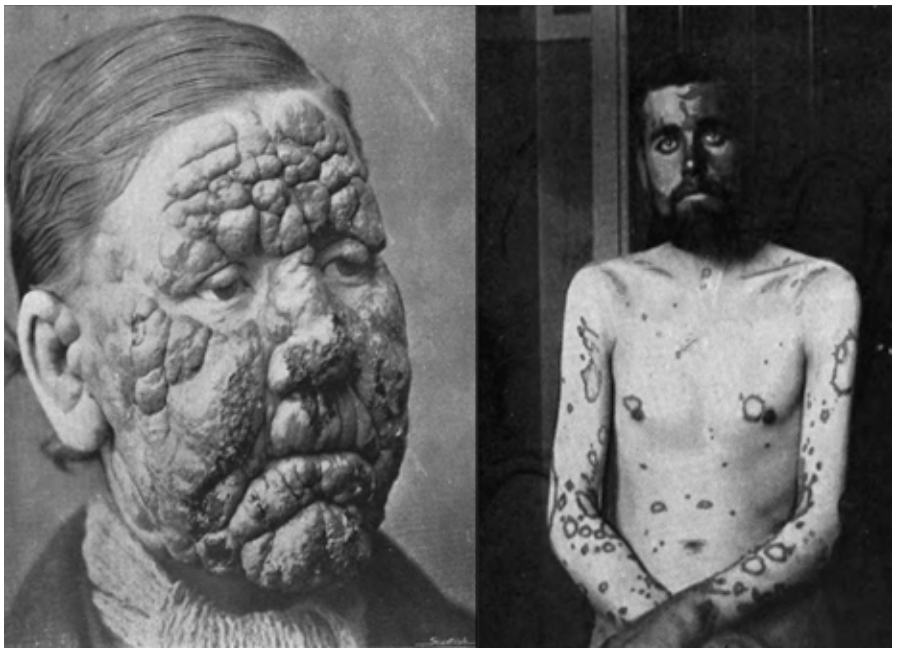
Blom K. Armauer Hansen and human leprosy transmission: Medical ethics and legal rights. Int J Lepr 1973;41:199-207.

Lock S. Research ethics – a brief historical review to 1965. J Intern Med 1995;238:513-520.

Marmor MF. The ophthalmic trials of G.H.A. Hansen. Survey Ophthalmol 2002;47:275-287.

Vogelsang TM. Gerhard Henrik Armauer Hansen: 1841-1912: The discoverer of the leprosy bacillus. His life and his work. Int J Lepr 1978;46:257-332.

Walker NP. An Introduction to Dermatology. Third edition. Philadelphia: William Wood and Co.



Maculo-anesthetic (tuberculoid or paucibacillary) leprosy (left) and lepromatous (multibacillary) leprosy (right). Tuberculoid leprosy is characterized by hypopigmented skin macules and anaesthetic patches from damaged peripheral nerves, while lepromatous leprosy is characterized by symmetric skin lesions, nodules, plaques and thickened dermis with detectable nerve damage typically late in the illness. (From Walker, 1905)

Longtime INPC Continues in Croatia

BY VIDA DEMARIN, MD, PHD, FAAN, FAHA, FESO

The 55th International Neuropsychiatric Congress (INPC) May 27-30 in Pula, Croatia, was held under the auspices of the president of the Republic of Croatia, her excellency Kolinda Grabar Kitarovic.

The órganizer of the congress is the Society for Neuropsychiatry, and the co-organizers are the department of medical sciences of the Croatian Academy of Sciences and Arts and the Central and Eastern European Stroke Society.

The Congress was endorsed by the World Federation of Neurology (WFN), European Academy of Neurology, WFN Applied Research Group on the Organization and Delivery of Care, European Psychiatric Association and Croatian Stroke Society. The main sponsors of the congress were the Ministry of Science, Education and Sports of the Republic of Croatia, City of Graz, City of Pula and Istria County. There were more than 350 participants from Austria, Albania, Bosnia and Herzegovina, Montenegro, Kosovo, the Czech Republic, Croatia, China, Greece, Iran, Italy, Ireland, Hungary, Macedonia, Germany, Poland, Romania, Russia, South Korea, Slovenia, Serbia, Thailand, Ukraine, United Kingdom and the United States.

The congress kicked off with an academic lecture on "WFN: The Way Ahead," given by our special guest, Prof. Raad Shakir, president of the WFN. The main theme was "Highlights in Neurology — What Have We Learned in the Last 55 Years" in stroke, post-stroke depression, multiple sclerosis, epilepsy, headache and pain and neurorehabilitation, presented by experts in the field, Professors Franz Fazekas, Kurt Niederkorn, Francesco Paladin, Wai Kwong Tang, Vesna Šeric and Vida Demarin.

55th INPC Opening Ceremony.

Main topics in psychiatry were "Evolutionary Perspectives in Psychopathology" and "Controversies and News in Psychiatry," organized by Prof. Karl Bechter and Francesco Benedetti. There were also numerous symposia, in particular: Challenging Child and Adolescent in Modern Society, Fourth European Summer School of Psychopathology, International Sports Psychiatry Meeting, Eighth International Symposium on Epilepsy, Fourth Symposium on the Interface Providers in Neurorehabilitation, Symposium on the Activities of the Association of Public Health Andrija Štampar, and symposia about stress management and acute stroke treatment.

Joint meetings with Alps-Adria Neuroscience Section, WFN Applied Research Group on the Organization and Delivery of Care, and Central and Eastern European Stroke Society, chaired by Professors Leontino Battistin and Vida Demarin on the current status of stroke management in the region and on perspectives and new approaches in neurorehabilitation, also were organized as a part of the INPC. Prof. Anna Czlonkowska from Warsaw gave a special lecture on Wilson's Disease, with original data from their registry.

During the congress, there were 66 lectures within 14 symposia, which were given by 55 lecturers from around the world, and a poster session with many interesting posters. Awards for best posters were given by the City of Graz and by INPC Kuratorium.

We are proud of this unique congress, being one with the longest traditions in the world. During the past 55 years, INPC has become a beloved place of meeting, a venue for continuing education in topics of neurology, psychiatry and related disciplines, and a point of scientific and professional exchange of experience for a large number of scientists and professionals from all over the world, continuing on the original idea of sciences and humanity. We hope to keep this success in the upcoming years. •

From left: Prof. Hrvoje Hećimović; Prof. Vida Demarin, INPC president; and Prof. Raad Shakir, WFN president.

Vida Demarin, MD, PhD, FAAN, FAHA, FESO, is president of the INPC.

COLLABORATION

continued from page 1

AFNA, AKUH meetings of neurology facilitate knowledge sharing and help develop ongoing working relationships.

tant opportunities to visit each another.

In this regard, the second Neurology Certificate Course was conducted via video conference June 6-9 in Kabul in collaboration with the FMIC, the Afghan Neurological Association and Aga Khan University in Karachi.

Seventeen speakers from neurology, neurosurgery, psychiatry and radiology departments participated, among which 14 were from the Aga Khan University and three speakers from Kabul. The World Federation of Neurology and the Asian Ocean Association of Neurology provided funding for this course.

The lectures covered a broad spectrum of neurological disorders, including stroke, central nervous system infections, headaches, epilepsy, neurological Investigations, coma and brain death.

Seventy residents and physicians participated in the conference from different parts of Afghanistan. The levels of interest were clear by the high level of engagement during the each question-and-answer period at the end of each session, participant feedback after the course revealed that the participants highly appreciated the course and called on planners for more frequent courses.

Esmatullah Hamed, MD, is president of the Afghan Neurological Association and consultant neurologist at the French Medical Institute for Children, Kabul, Afghanistan.

WILLINGNESS TO HELP

continued from page 3

training fellowship for those who have been trained elsewhere and wish to subspecialize in a specific field.

In view of the great need in Africa, the WFN entered negotiations with the Egyptian Neurological Society. This was most successful as the University of Cairo, one of the oldest in North Africa, which has kindly agreed to do the same, as there is an urgent need for Anglophone training in addition to the Francophone training in Rabat. The department in Qasr El Aini's sprawling teaching hospital was inspected and accredited by the WFN Education Committee. Again the cost to the WFN is minimal, and the trainees will start in September 2015.

The needs are great. The WFN has therefore entered negotiations with two other major centers in Africa. Two have applied to be training centers: Dakar, Senegal, with its long tradition of training in West Africa (Figure 1), and Cape Town, South Africa, with its history of training African neurologists (Figure 2). This will make four Training Centers, two Francophone and two Anglophone. In all these cities, trainees will receive their training in exactly the same way as local trainees, and at the successful conclusion will be certified as specialists by the awarding institution and by the WFN, having been trained in an accredited program.

As these programs grow, there will be a definite need for diversifying funding. At this moment, the WFN is just about able to fund a small number of trainees. However, as the numbers increase in an exponential manner, we need to find outside sources of finance. The WFN is trying to approach funding and philanthropic organizations for support. I would be most grateful for all of our readers to advise the WFN and me directly or through their national societies if they can think of a possible source of funding we can approach.

In the two examples, neurological societies in the developed and the developing world have come up trumps. They have demonstrated their willingness to help in constructive and practical manners with ways of collaborating with their fellow neurologists. They do this with a great degree of selflessness and with the guiding principle of promoting our specialty. For that, my fellow WFN trustees and I are most grateful. •

A Continuum Course in Vietnam

BY NGUYEN HUU CONG

Through the aid of the World Federation of Neurology (WFN) and the American Academy of Neurology (AAN), the continuum courses have been carried out for many years in Vietnam. The courses are conducted one to two times a year, with the topics chosen by members of the executive committee of the Ho Chi Minh City Neurological Association, based on the issues delivered annually by the WFN and AAN. These courses are usually organized in Ho Chi Minh City, the largest city in Southern Vietnam. On May 6, the course took place for the first time outside Ho Chi Minh City in the Mekong Delta.

Nguyen Huu Cong

The Tien Giang Neurological Association (TNA) was founded one year ago in My Tho, a beautiful small town in the Mekong Delta and the capital of Tien Giang Province. It now has 60 members. Most of them are neurologists from the surrounding provinces in the Mekong Delta, but some are internists working in rural areas without neurologists. Dr Nguyen Van Thanh, chief of the department of neurology at Tien Giang Hospital and president of the Tien Giang Neurological Association, is actively working and running the association.

The Vietnamese Association of Neurology and the Ho Chi Minh City Neurological Association have been assisting the TNA by sending our experts to attend lectures there. This year's continuum course, held at Tien Giang General Hospital, covered the topics of epilepsy, as presented in *Continuum: Lifelong Learning in Neurology*, Vol. 19, Issue 3, June 2013. The lecturers were Prof. Pierre Jallon, former professor of neurology at the University of Geneva; Le Van Tuan, MD, PhD; and Tran Quang Tuyen MD, from the Ho Chi Minh City Neurological Association. The lectures focused on these articles:

1. The 2010 Revised Classification of Seizures and Epilepsy
2. Antiepileptic Drug Treatment: New Drugs and New Strategies
3. EEG and Epilepsy Monitoring

Prof. Pierre Jallon presented the old and new definitions, compared previous to revised classifications and analyzed the advantages of new terms and concepts and their limitations. Then the professor also talked about the differential diagnosis, especially in difficult cases from the features of syncope convulsions, hypoglycemia and psychogenic nonepileptic seizure. Subsequently, Dr. Le Van Tuan introduced the article, "Antiepileptic Drug Treatment: New Drugs and New Strategies," speaking about the targets of epilepsy treatment, classical AEDs and newer medications available in our country. He also showed how to select antiepileptic drugs appropriate for each types of seizure. The topic of AED treatment fascinated all of the attendees, and they started a fervent conversation with the lecturer. Dr. Tran Quang Tuyen introduced the usefulness of video EEG in supposing epilepsy diagnosis. On this occasion, Drs. Le Van Tuan Tran Quang Tuyén, took turns to report on the situation of using EEG in Vietnam for epilepsy monitoring. Once again, many questions related to clinical practice were asked of the lecturers. After the presentations, attendees were encouraged to discuss the contents of the articles, "Patient Management Problem" and "Patient Management Problem — Preferred Responses."

The discussion lasted past the fixed hours. At the end of the course, Dr. Nguyen Van Thanh, president of the TNA, expressed the gratitude of the Tien Giang Association members to the lecturers, AAN and WFN. The participants showed their gratitude in kind and suggested similar educational courses in the Mekong Delta in the future.

The CME course with *Continuum — Lifelong Learning in Neurology* has contributed to improving the knowledge of epilepsy in our neurologists in Tien Giang and the surrounding provinces.

The issues of the *Continuum: Lifelong Learning in Neurology*, with articles written by experts from the American Academy of Neurology, are useful for our neurologists, especially young members of our associations in Vietnam. We are planning to organize one additional course in August 2015 on "Peripheral Nervous System Disorders." We believe that afterward we will continue to have the assistance of the World Federation of Neurology. •

Nguyen Huu Cong is an associate professor; deputy chairman of the neurological department at Pham Ngoc Thach University of Medicine, lecturer of the neurological department of Ho Chi Minh City University of Medicine and Pharmacology; president of the Vietnam Association of Electro Diagnostic and Neuromuscular Medicine; and vice president of the Neurological Association of Ho Chi Minh City.

RESEARCH

continued from page 1

diseases in the global community
- Enhanced pathogen discovery testing globally, with increased access to advanced testing in resource-limited settings
- Drug-development trials, including studies on CNS penetration of medications for neurological infections and setting drug-dosing and treatment protocols specific for CNS infections.

Training and Educational Goals

- Develop and enhance educational sessions on neurological infections at the World Congress of Neurology meetings
- Training sessions in neuroinfectious diseases for general practitioners and neurologists
- Develop training modules on neurological infections with a focus on acute meningitis/encephalitis, chronic meningitis, opportunistic infections in immunosuppressed patients, viral encephalitis and tropical neurology

Kiran Thakur, MD, is an assistant professor in the department of neurology at Columbia University College of Physicians and Surgeons, New York, and Sarosh Katrak, MD, DM, FRCP(E), is director of the department of neurology at Jaslok Hospital and Research Centre, in Mumbai, India.

COGNITIVE AGING

continued from page 2

be more apparent in environments that require individuals to engage in highly technical and fast-paced or times tasks, in situations that involve new learning, and in stressful situations … and may be less apparent in highly familiar situations.

The potential impact of CA on driving, decision-making and understanding health care instructions is discussed.

The report aids in rectifying some common incorrect assumptions about older adults such as "it's all downhill" or that cognitive decline is inevitable, although only a small minority of older adults develop dementia. The authors note the wide heterogeneity among older adults and variability with CA. Some cognitive functions show decline (e.g., speed of information processing, some aspects of attention and memory), others are relatively stable (e.g., sustained attention, crystalized intelligence), and some may improve (e.g., wisdom, expertise, life satisfaction).

Subsequent chapters address the important issue of risk factors and what is known about prevention and intervention for cognitive decline. Information is provided on each known modifiable factor, including lifestyle, physical environment, education, intellectual engagement, social engagement, diet, exercise, vitamins and supplements, toxins and substance abuse. An extensive section is devoted to health and medical factors, including control of cardiovascular risk factors.

Two important, often preventable factors include adverse effects of medications to be avoided in elders (revised Beers Criteria) and delirium (preventable 30 percent to 50 percent of the time). Particular mention is made about benzodiazepine risks and drugs with anticholinergic properties, including antihistamines, which are over-the-counter in many products and often taken to induce sleep. The authors explain additional measures to help prevent hospital association delirium, which is associated with adverse outcomes and can have significant residual effects.

People are worried about cognitive decline and emphasis is given to public education about cognitive aging, including measures to maintain cognitive health. The need for additional research and better understanding is a recurrent theme for each topic about CA.

The committee reviewed the existing evidence for a variety of interventions, some which have been commercially promoted, including cognitive training, medications, supplements and transcranial direct current stimulation. The authors recommend the development of policies and regulatory review of cognition-related products. Advertising may be misleading, and products costly for the involved individual.

It is proposed that core competencies and curricula in CA be developed and implemented for health professionals and that cognitive health be promoted during medical visits. Effects of CA on driving, health care, financial and consumer decisions are addressed with recommendations to help older adults "avoid exploitation, optimize their independence, improve their function in daily life, and aid their decision-making." Driving resources are provided to help promote safe driving or aid in deciding if it is time to stop driving.

Although additional study is needed, the report also contains information about what can be done now. Consistent with the title, the report concludes with Opportunities for Action. The recommendations involve a wide audience, including individuals and families; communities; health care professionals, associations and systems; public health agencies; organizational, media and consumer groups; researchers and funders; policymakers; regulators; consumer advocacy groups and the private sector. The concluding remarks advised the continued strengthening of efforts in Alzheimer's disease and other degenerative dementias, while still attending to the vast majority of older adults who may experience cognitive decline without a neurodegenerative disease and who want to maintain cognitive health. The committee "hopes that a commitment to addressing cognitive aging by many sectors of the society will bring about further effective interventions, greater understanding of risk and protective factors, and a society that values and sustains cognitive health."

Commentary

BY RITA A. SHAPIRO, DO, FAAN, FACP

The action guide for individuals and families contained excellent information and advised talking to their health care providers about risk factors and prevention of cognitive decline. However, it did not appear to promote discussion of cognitive symptoms with the provider for diagnostic assessment. The potential exists for older individuals and families to attribute all symptoms to cognitive aging even when significant impairment is present. Although concepts of CA, mild cognitive impairment and preclinical neurodegenerative disease are changing, and boundary areas are discussed well in the full report, the action guide for patients and families does not contain recommendations to "talk to your doctor" (or other health care provider) about all cognitive symptoms to make sure they are compatible with cognitive aging.

Rita A. Shapiro

The shortcomings of current norms are extensively discussed, along with the need for better norms. Current norms affect clinical diagnosis, particularly when applied to a single individual at one point in time. Concepts likely will be refined better in future clinical criteria, but for 30 years ones relevant to Alzheimer's disease (NINCDS-ADRDA 1984, NIA/AA and DSM5) have required significant impairment in social or occupational functioning or when functional independence is compromised. Additional comments about how the authors reconciled the concept of functional impairment would be helpful to the office clinician trying to make a clinically accurate diagnosis. The report is well-referenced and offers extensive recommendations in each chapter and in the conclusion. They are not prioritized, and each professional group or sector will need to decide which are most important to initiate.

Overall, this published report on cognitive aging "Progress in Understanding and Opportunities for Action" was true to its title and the first of its kind to comprehensively address the topic. The knowledge base of human cognition continues to expand, and there likely will be future refinements. The summary and chapter on "Characterizing and Assessing Cognitive Aging" stands alone as current and thorough for physicians and neuropsychologists. Cognitive aging is an important public health issue, and this report is unique in its scope and call to action. It will be considered a valued resource for many. •

Rita A. Shapiro, DO, FAAN, FACP, is an assistant professor in the department of neurological sciences at Rush University Medical Center, Chicago.

References

Cognitive Aging: Progress in Understanding and Opportunities for Action, Institute of Medicine of the National Academies, Committee on the Public Health Dimensions of Cognitive Aging, Dan G. Glazer, Kirstine Yaffe, and Catharyn T. Liverman, Editors, 2015

JAMA. Published online April 15, 2015. doi:10.1001/jama.2015.4380

BRAIN DEATH

continued from page 6

medical education in some areas of the world. Interestingly, 57 percent of respondents disagreed with the statement that brain death equates to cardiac death. This response did not appear to be associated with country income level, which may reflect variations among individuals related to personal or cultural beliefs. Nearly all physicians from countries with designated transplant networks agreed that brain death was an established concept at their hospitals.

Variations in the practice of declaring brain death were noted as well. While the majority (66 percent) of respondents reported that an attending physician trained in neurology, neurosurgery or intensive care must make the determination of brain death, 25 percent of those polled stated that a resident-level trainee could independently declare brain death. Discrepancies were noted in the clinical examination, with more than half of the countries citing an institutional protocol that was discordant with the 2010 American Academy of Neurology criteria. Apnea testing was another area in which much variability existed, with differences in blood gas requirements, number of tests required and equipment.

There did not seem to be an association between the use of ancillary testing and country income level. The authors hypothesized that this finding may be explained by the increased use of ancillary tests by physicians who are unfamiliar with brain death, as the AAN practice parameter does not require ancillary testing in straightforward cases.

While this study depended on the responses of individuals, there may be a bias in the nature of self-reported perceptions and practices. The results may not reflect each country as a whole, and there may be regional differences within each country that were not assessed. In addition, the survey was presented in English only, which may have led to some misinterpretation in the questions by responders. In the lowest income countries, the need for a policy surrounding the declaration of brain death may be irrelevant as there are more urgent public health issues. Overall, however, this study represented a large, diverse and worldwide sample.

Variations in brain death declaration both in practice and as a concept persists despite advances in communication and education worldwide. This study identifies the challenges in developing a worldwide consensus on the determination of brain death. It is unclear whether creating an international standard for brain death is a feasible goal. In addition to variations in medical education, cultural beliefs and legal codes worldwide, there are also individual differences in practice and beliefs, as evidenced by variations in practice within the United States, which may be related to individual biases and opinions. This study highlights the need for the international community to work together to create a more uniform approach to brain death, especially as the practice of organ donation continues to expand. •

Torrey Boland, MD, is an assistant professor in the department of neurosciences at Rush University Medical Center, Chicago.

Reference

Wahlster S, Wijdicks EFM, Patel P, et al. Brain death declaration. Neurology 2015; 84:1870-1879.

pactrims
Pan-Asian Committee
for Treatment and Research in Multiple Sclerosis

Join us in Seoul

November
19-21
2015
Seoul, Republic of Korea

The 8th Congress of
the Pan-Asian Committee for
Treatment and Research in Multiple Sclerosis
(PACTRIMS)

Seoul, Republic of Korea
19-21 November 2015

www.pactrims.org