

# WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

## Report on the XXII World Congress of Neurology

BY WILLIAM M. CARROLL, MD

The XXII World Congress of Neurology opened Nov. 1, 2015, at the CasaPiedra Conference Center in Santiago, Chile. A total of 3,500 delegates were registered from 110 countries, and this Congress brought a significant rise in the number of participants under age 35 compared to



William M. Carroll

those attending Vienna and Marrakesh. This demographic added a youthful look to the Congress. Delegates enjoyed the intimate Chilean décor of the CasaPiedra, comprehensive scientific and teaching course programs, and opportunities for social, educational and cultural discourse.

### Opening Ceremony

The World Congress Sunday evening opening was one of the most enjoyable ceremonies for a long time. Not only was the cultural performance informative, lively and just the right duration, but so were the preceding addresses by World Federation of Neurology President Raad Shakir and World Congress of Neurology President Renato Verdugo, and the following address by Dr. Michelle Bachelet, president of Chile. A pediatrician by training, Dr. Bachelet spoke firmly on the need for global action on stroke and dementia, leading causes of the noncommunicable neurological disease burden in the world. She also highlighted the efforts of the Chilean Government through its Program of Explicit Guarantees in Health Care, which targets these and other



Michelle Bachelet, president of Chile, addresses the Congress.

noncommunicable disease states, such as traumatic brain injury, Parkinson's disease and multiple sclerosis. She emphasized that the program was primarily preventative but also provided structured care.

Raad Shakir emphasized the need for both the fostering of quality neurology and equality of health care worldwide, Renato Verdugo gave an illuminating and much appreciated background on the history of Chile and the Chilean peoples.

### Scientific Program

Earlier that day, Dr. Oleg Chestnov, Assistant Director-General of Noncommunicable Diseases and Mental Health at the World Health Organization (WHO), led

see **WORLD CONGRESS**, page 8



The XXII World Congress of Neurology opens with a lively Chilean cultural performance.

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## Brain Health: Why Time Matters in MS

BY GAVIN GIOVANNONI, MD, ON BEHALF OF THE MS BRAIN HEALTH STEERING COMMITTEE.

The goal of treating patients with multiple sclerosis (MS) should be to maximize lifelong brain health. This is the central theme of a new international consensus report from a multidisciplinary author group. *Brain Health: Time Matters in Multiple Sclerosis* calls for greater urgency at every stage of diagnosing, treating and managing MS. Its recommendations aim to facilitate a therapeutic strategy that minimizes

disease activity (Figure 1), involving:

- Shared decision-making
- Early intervention
- Improved treatment access
- Proactive monitoring

The report was launched during a symposium, "Is the MS Community Ready to Promote Brain Health?" on the eve of the European Committee for Treatment and Research in Multiple Sclerosis Congress Oct. 6, 2015.

Professor Tim Vollmer outlined the

see **BRAIN HEALTH**, page 9

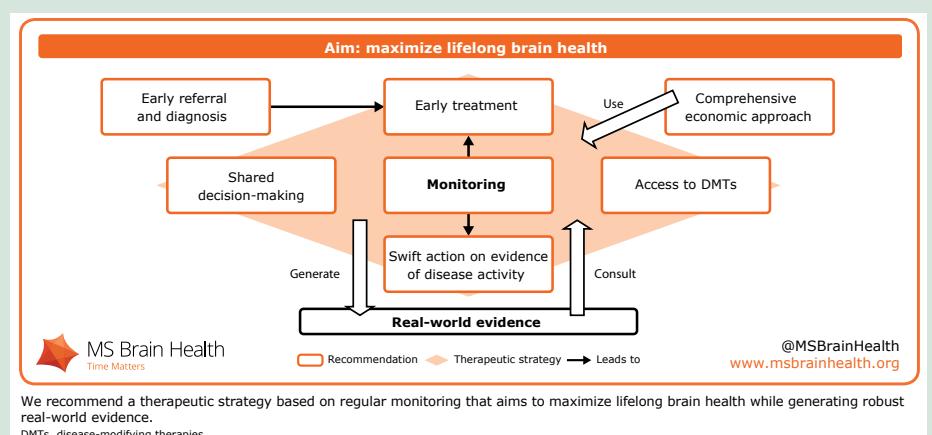


Figure 1.



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**FROM THE EDITOR-IN-CHIEF**

This issue of *World Neurology* is the last for which I will serve as editor. Fulfilling this role for the past three years has been an exciting endeavor. I greatly appreciate that I was invited, and that I accepted the challenge and opportunity to develop *World Neurology* as an online publication.

In late 2012, then WFN President Vladimir Hachinski invited me to assume the position as editor-in-chief and oversee the transition from paper to an online newsletter. Rhonda Wickham



**DONALD H. SILBERBERG**

and her colleagues at Ascend Integrated Media, *World Neurology's* publishing partner, taught me what I needed to know, and, in general, they helped to make the transition to electronic distribution smooth. In addition to my thanks to Rhonda, I am indebted to Vladimir Hachinski and WFN President Raad Shakir for their support and interesting contributions, and also at WFN to Keith Newton for managing the calendar and carefully proofing galleys. Peter Koehler has unfailingly personally

contributed, or he asked a colleague to contribute important articles on the history of neurology and neurological sciences for every issue.

As Raad Shakir notes in his gracious article about the transition to the editorship of Steven Lewis, effective for the March 2016 issue, generating a comprehensive list of email addresses has remained a persistent problem. I am hopeful all the member organizations of WFN will help Steven address this.

So, as I finish my three-year term, I also want to thank the many other individuals who have contributed articles, book reviews, ideas and guidance. I have enjoyed my tenure, and I wish Steven Lewis the best as he assumes the editorship. •

**A Note of Thanks to Don Silberberg**

BY RAAD SHAKIR

Since Don took over as editor of *World Neurology (WN)* in April 2013, we have seen a steady improvement in the quality of our newsletter with the publication of each of the 16 issues he has overseen.

In his first editorial, he stated that the new electronic format would permit ready coordination among the two WFN publications, the *Journal of Neurosurgery* and *WN*, and the



**RAAD SHAKIR**

WFN website.

Part of the challenge, he said, would be to avoid all but essential redundancy among the three, and that has clearly been achieved through the *World Neurology* Editorial Advisory Board, which was created, and in other ways. In fact, so successful has this been that we have been able, during his editorship of *World Neurology*, to launch a third publication — the new open access journal, *eNeurologicalSci (eNS)*, a sister journal to WFN's longtime flagship scientific journal, the *Journal of the Neurological Sciences (JNS)*. No doubt, we shall begin to seamlessly blend this too into the system, as it develops and grows as part of the WFN's publications portfolio.

Don set out his plans to publish important news from the WFN, reports of WFN activities in the field and reports

from the WFN's committees and officers, but beyond this, he also targeted abstracts of articles that seemed to be the most important to global neurology. All of this has been an unqualified success, for which the trustees and I, and indeed the WFN as a whole, are most grateful.

*World Neurology* is now on sound footing for his successor to take it forward to the next stage. There is still much work to be done in developing the email database, as we all know, and we have begun to address that issue as well. Don will be succeeded by Prof. Steven Lewis of Chicago, Illinois, USA, as editor and Walter Struhlar of Innsbruck, Austria, as co-editor.

I simply wish to express our collective gratitude for the contribution Don Silberberg has made and to thank him for his continuing efforts on behalf of the WFN. I hope the experience has been an enjoyable one and that Don has found the organization to have a useful role to play in neurology. •

**Report on the 23rd Annual Conference of the Indian Academy of Neurology**

BY GAGANDEEP SINGH, ARABINDA MUKHERJEE AND PARDEEP KUMAR MAHESHWARI

The 23rd Annual Conference of the Indian Academy of Neurology (IAN) was held Oct. 1–4, 2015, at Agra, the city of Taj, in India. Planning the IAN scientific program with sizeable professional body of clinical neurologists in India is always a challenging task for two reasons. For one, India is a country with 1.28 billion people with about 1,800 neurologists, which amounts to one neurologist for 7,00,000.

This entails providing each neurologist with updated knowledge so as to be able to deal with a wide range of neurological disorders, including tropical infections and toxin-induced disorders, besides the usual neurological conditions managed by Western neurologists.

The demand on neurologists requires the ability to deal with a large patient pool with diverse neurological conditions. At the same time, recent technological

and conceptual advances require that neurologist have the ability to provide state-of-the-art tertiary care to patients

see **NEUROLOGY**, page 11



The Taj Mahal plays as backdrop as delegates gather during the Clean India campaign held during the conference.

## PRESIDENT'S COLUMN

Now the 22nd World Congress of Neurology (WCN) in Santiago, Chile, is over with huge success both scientifically and socially. There is a specific and enduring success story I would like to mention in this column. In every WCN, the program committee makes a specific point of bringing together all brain health sister disciplines to be present and to participate.

So in the Congress, the World Psychiatric Association, World Federation of Neurological Societies, International Child Neurology Association, World

Federation of Neurorehabilitation and International Brain Research Organization were all present.

These organizations constitute the umbrella for brain health. The World Congress of Neurology in Santiago had sessions for each of these organizations, which were well attended and presented a showcase for each one of them. The WFN leaves the convening of the sessions and the choice of topics to the federations. It is absolutely correct that they should feel free to inform attending neurologists on what they think is of interest to us in their fields.

The World Brain Alliance (WBA) is therefore moving full steam ahead, and the collaboration is now so close that the time has come for tackling major issues, which can be dealt with jointly. Forming small working groups to tackle specific common disorders is underway. Three topics already have been agreed upon, those being dementia, epilepsy and traumatic brain injury. It is absolutely correct that working together, the WBA is a much more powerful entity rather than each of us acting separately. Moreover, in many situations we are tackling the same issues at the interna-



RAAD SHAKIR

national level. The World Health Organization is going ahead on Global Coordination Mechanism on Noncommunicable Diseases (GCM NCDs). The place for neurology NCDs was not initially prominent, in spite of the fact that generally brain disorders cause major death and disability more than HIV, malaria and tuberculosis put together.

The role of the WBA is to fill the gap and inform, as well as educate public health authorities on the devastating effects of brain health disorders, whether they are neurological, mental, developmental or substance (NMDS) use issues. The shortcomings of neurological health provisions were highlighted yet again in the second edition of the *Neurology Atlas 2015*. This is a combined effort between WHO and WFN. The *Atlas* was presented in a preliminary manner at the World Congress. It will be published in early 2016. It gives details of the current status of manpower, service provisions, social support and drug availability for neurological, neurosurgical, child neurology and rehabilitation facilities across the world.

For the WBA to gel with our specialty sister organizations in the Global Neurology Network, a joint meeting with the representatives of all organizations present in Santiago was arranged. These global neurology associations convened sessions at the WCN and were represented at the highest level. The World Stroke Organization, International League Against Epilepsy, International Parkinson's and Movement Disorders Society, MS International, Alzheimer's International, International Headaches Society, Peripheral Nerve society, Neuro-ophthalmology, Neuro-Otology, Neuro oncology, History of Neurology all had sessions which were of most interest to participants.

The issues of brain health are crucial to the major exposure we would like to have at the highest level of international health care. If we are going to influence public policy, we need to be at the forefront of issues when decision-makers look into allocating budgets and resources. The only



Representatives from the World Brain Alliance and sister organization in the Global Neurology Network met during the World Congress of Neurology (WCN) Nov. 3, 2015 in Santiago, Chile.

**Front row (from left):** Ingrid Tein, president, International Child Neurology Association; Gunther Deuschl, president, European Association of Neurology; Rana Karabudak, Neuroimmunology; Bill Carroll, vice-president and Global Neurology Network chair, WFN; Stephanie Clarke, president, World Federation of Neuro-rehabilitation, Raad Shakir, president, WFN; Yong-Kwang Tu, president, World Federation of Neurosurgical Societies; Cathy Rydell, CEO, American Academy of Neurology; Tarun Dua, medical officer, Program for Neurological Diseases, World Health Organization; Terrence Cascino, president, American Academy of Neurology; and Riadh Gouider, trustee, WFN.

**Back row (left to right):** Renato Verdugo, president, WCN Santiago; Steven Lewis, WFN co-opted trustee and editor continuum, American Academy of Neurology; Erik Wolters, president, International Association of Parkinsonism and Related Disorders; Riccardo Soffietti, European Association of Neuro-Oncology; Sam Wiebe, International League Against Epilepsy; Geoff Donnan, World Stroke Organization; Alan Thompson, Multiple Sclerosis International Federation; Amadou Gallo Diop, trustee, WFN, chair, Africa Initiative; Mark Hallett, president, International Federation of Clinical Neurophysiology; Claudia Trenkwalder, World Association of Sleep Medicine; and Jes Olesen, International Headache Society.

way to do this is for NMDS to be looked at together. Then the combined grouping is big enough to compete for funding and support, compared with similar big groupings such as cancer or cardiac diseases.

The big drive of WHO toward global coordinating GCM NCDs is gathering pace. Although the scope of the process is not yet complete, one can see WHO trying to listen to all stakeholders, and the matter of WHO dealing with disease management is now a reality. The United Nations has produced the declaration on NCDs and 17 Sustainable Development Goals (SDGs) in 2015. In all these initiatives and targets, brain health should be at the forefront, and we as neurologists should push hard to have neurological issues right in the middle of governmental thinking. Financial support for our patients will only come if we have clear publically supported initiatives in a language that makes sense and shows targets, which are realistic and achievable.

The WHO GCM NCDs is an excellent platform to put forward our views on how to achieve early diagnosis and prevention of neuro NCDs. The issue, which attracts WHO and its agencies, is prevention and coping with various disorders at the primary care level. This is fine and commendable, however, in our world there is a follow on to this, which is management of many disorders, which are chronic, and for many lifelong. The fact that NMDS cause major disability adjusted life years is an important

fact, which always should be at the front of all measures carried out by health authorities. It is also true that the cost of coping with NMDS conditions will be beyond health budgets even with high-income, let alone low- and middle-income economies.

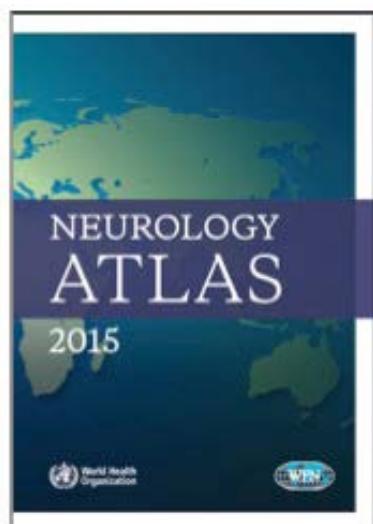
The emphasis on management, including prevention, is a change in WHO thinking, which we need to embrace and welcome. WHO is receptive and recognizes that advances in genetics and imaging have created a new era in early diagnosis and at times preclinical recognition, which means specialists are needed and in numbers so there shall be no difference in care between various income groups. There is no doubt that recommendations to national governments at the GCM NCDs to train more doctors are commendable and welcome. We should also bring forward the idea that although a figure of 50 percent of those young doctors were recommended to be in primary care, there is an urgent need to increase the number of specialists in brain diseases across the world. It is true that this may be a long-term policy and to a degree wishful thinking, but if we look at the SDGs, many of which are long term but all of them have been approved at the highest level of the United Nations.

The way ahead is long but brain health, when presented to decision-makers, has so far been received with a positive and understanding attitude. We should all work at every level to promote brain health. •



## Neurology Atlas

- A joint collaboration of World Health Organization and World Federation of Neurology



# NIH-Led Effort Details Global Brain Disorders Research Agenda in November 19, 2015, Nature Supplement

Note: [This National Institutes of Health press release](#) highlights the publication of a supplement on *Brain Disorders Across the Lifespan — Research to Achieve Nervous System Health Worldwide*.

Infants are starved of oxygen during difficult births. Children's cognitive function is permanently damaged due to malnutrition or exposure to infections or toxins. Adults suffer from crippling depression or dementia. The breadth and complexity of these and other brain and nervous system disorders make them some of the most difficult conditions to diagnose and treat, especially in the developing world, where there are few resources. A National Institutes of Health (NIH)-led collaboration has studied these complex issues that occur across the lifespan and today published a supplement to the journal *Nature* that lays out a research strategy to address them.

"We may be at a tipping point for research related to global brain disorders," according to an introductory article authored by co-editors Dr. Donald Silberberg, of the University of Pennsylvania, Philadelphia, and Dr. Rajesh Kalra, of Newcastle University in the United Kingdom. "Over the past few decades, exciting basic science discoveries have been made, effective interventions have been developed and advances in technology have set the stage for a research agenda that can lead to unprecedented progress in this field."

More than 40 scientists collaborated to produce nine review articles that detail research priorities for different aspects of

brain disorders in low- and middle-income countries (LMICs). The most strategic opportunities involve cross-disciplinary studies of the relationship among environmental, developmental and genetic factors on brain disorders, the co-authors note. Advances in genomics provide new clues for mental disorders research, including predispositions for substance abuse and addiction, which could be harnessed to improve diagnosis and identify tailored treatments. The miniaturization of diagnostic technologies and other mobile health advances could improve surveillance, assessment and treatment of mental and nervous system disorders in LMICs, where cell phones are widely used.

To address infection-related nervous system morbidity, scientists should produce accurate estimates of disease burden, develop point-of-care assays for infection diagnosis, improve assessment tools for cognitive and mental health impairment and study ways to improve infection prevention and treatment. In addition, the authors note that because LMIC populations suffer exposures to toxins due to poorly regulated mining or other industries, there are opportunities to advance scientific understanding of brain responses to environmental challenges.

The authors also advocate for longitudinal studies that would be conducted across the lifespan in LMICs, to study the unique circumstances and risk factors in childhood, adolescence, adulthood and old age. Regional variations in the challenges posed by brain disorders mean that research priorities need to be addressed country-by-country, and by regions within

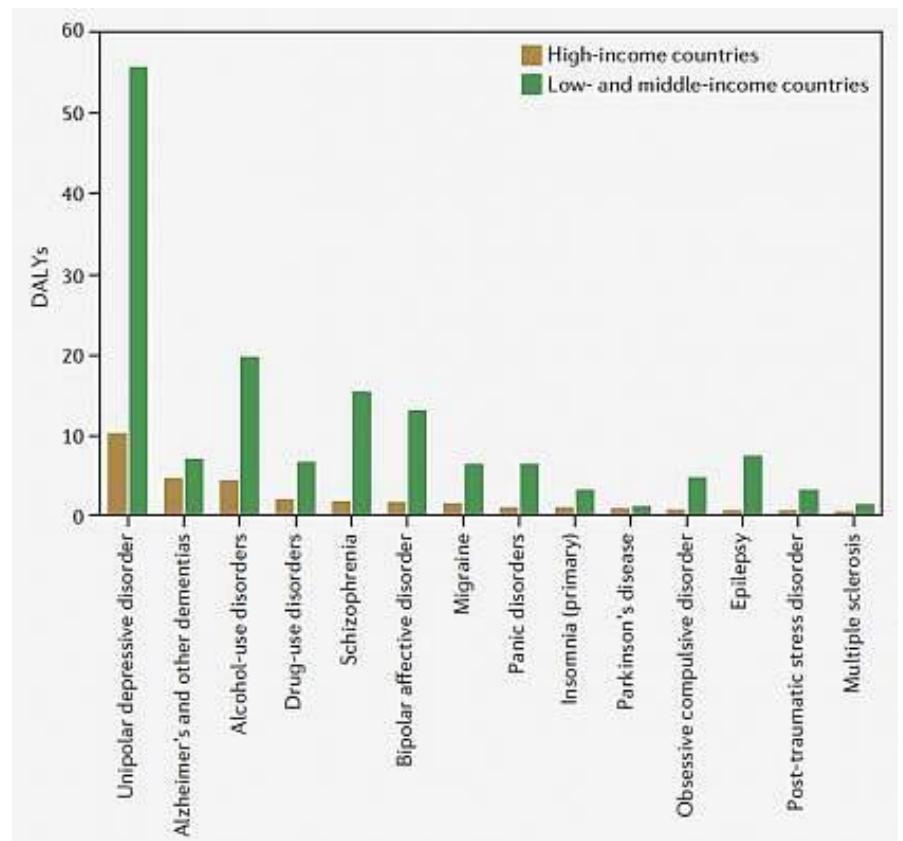


Chart shows comparison of disability associated life years (DALYs) between high-income and low- and middle-income countries. The data were derived from the [World Health Organization](#) and the *Global Burden of Disease 2010 Study*.

countries. To explore these many research gaps, local scientific capacity must be developed, as these questions are best addressed by indigenous scientists who can seek context-sensitive solutions.

Although they cause nearly one-third of the global burden of disease, brain and nervous system disorders have been largely absent from the global health agenda, according to authors. As the population ages, these disorders will make up a growing proportion of illness and disability. This rise will be steeper in LMICs, where early life trauma, infectious disease and malnutrition contribute to the development of these disorders, the co-authors of the study predict. Although developing countries bear a disproportionately large share of these problems, they have minimal resources to cope with the challenges.

"This burden significantly affects the ability of children and adolescents to thrive and live out their true potential, and the ability of young adults to be productive economically and support their families, as well as the opportunity for older adults to age in safe and nurturing settings," the co-authors observe.

The tide is changing, the supplement's authors acknowledge, with mental health, substance abuse and chemical exposures among the priorities included in the new Sustainable Development Goals, announced by the United Nations last September.

The project, led by the Center for Global Health Studies at the NIH's Fog-

arty International Center, grew from a meeting of grantees and other scientific experts, convened in February 2014.

While advances in brain imaging, nanoscience and genetics hold much promise for research discoveries, more resources are needed, according to Fogarty Director Dr. Roger I. Glass, who contributed a foreword to the publication. "We hope this supplement inspires other scientists and funding partners to join us in addressing the full spectrum of research, training, implementation and policy questions needed to alleviate global suffering from mental and neurological disorders that occur across the lifespan."

The journal supplement is open-access and available at [www.nature.com/brain-disorders](http://www.nature.com/brain-disorders).

The Fogarty International Center addresses global health challenges through innovative and collaborative research and training programs and supports and advances the NIH mission through international partnerships. For more information, visit [www.fic.nih.gov](http://www.fic.nih.gov).

About the National Institutes of Health (NIH): NIH, the nation's medical research agency, includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. NIH is the primary federal agency conducting and supporting basic, clinical, and translational medical research, and is investigating the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit [www.nih.gov](http://www.nih.gov).



Cover of supplement to journal *Nature*, titled *Brain Disorders Across the Lifespan: Research to Achieve Nervous System Health Worldwide*.

# Oliver Sacks: A Bright Star in the Neurological Sky

BY ORRIN DEVINSKY, MD

Oliver Sacks is likely the world's best-known neurologist. From the early roots of a pure subspecialty in the early 19th century to now, it would be hard to identify another neurologist who has touched as many lives. He did it all outside of the mainstream of traditional academic or private practice neurology. He forged his own path.

Born in 1933 in London, his early life was an intellectual cauldron of family and friends. His mother was a surgeon and anatomist. His father was a general practitioner who taught Sacks that every patient was a special story. His aunts, uncles and cousins included inventors, chemists, United Nations diplomats, Nobel laureates, celebrated cartoonists, directors, writers, etc. His two best childhood friends were Jonathan Miller and Eric Korn. Miller trained as a neurologist, but went on to become an acclaimed opera director, actor, author, television presenter, humorist and documentarian. Korn was a polymath who loved science, theater, poetry and literary criticism. He was an antique bookseller who helped recreate Darwin's library at Down House.

This idyllic childhood was destroyed by the blitz of London in World War II. Sacks was sent to a boarding school in the country, where a cruel headmaster reigned. He went on to college at Oxford, where he first encountered his literary mentor, W.H. Auden. After medical school at Oxford and an internship at Middlesex Hospital in London, Sacks came to America with his motorcycle. Shortly after arriving, he sent his parents a one-word telegram, "Stay-

ing." In 1965, after completing an internship at Mount Zion in San Francisco and a residency in neurology and neuropathology at the University of California-Los Angeles, Sacks moved to New York, which would be his home until his death 50 years later.

He attempted a career in neuropathology, but clumsy hands held him back, and he moved to his passion, clinical medicine and writing. His first book, *Migraine*, was published in 1970. He interwove the neurological history of migraine with his case studies and his own migrainous experiences. While working at a chronic hospital in the late 1960s, Sacks cared for patients with postencephalitic parkinsonism, who had been left for custodial care. He convinced the hospital's administration to give them the chance to be treated with L-dopa. He prevailed, and the complex stories of triumph and defeat remain among the most fascinating and beautifully written case studies in medicine.

*Awakenings* propelled Sacks into a literary arena no neurologist had ever reached before. Twenty years later, Penny Marshall would direct the movie in which Robin Williams played Sacks, and Robert De Niro played one of the postencephalitic patients.

His career continued to rise and through his many books — from *The Man Who Mistook His Wife for a Hat* to *Musicophilia*, from *An Anthropologist from Mars* to *Hallucinations*, he created a remarkable neurological legacy. In addition, he published more than 50 papers and letters in the mainstream academic literature. His detailed case studies — from achromatopsia to temporal lobe



Oliver Sacks (left) and Orrin Devinsky.

epilepsy — gave new insights to neurologic disease and brain mechanisms. His last year of life was remarkably productive with the release of his memoir, *On The Move*, and several extended essays in the *New Yorker* and the *New York Review of Books*. In his final months of life, he wrote his most provocative and compelling pieces — three essays in the *New York Times* that revealed his terminal diagnosis and how he planned to live what time remained to him. These essays resonated with readers around the world.

On a personal side, Oliver Sacks loved his patients, family and friends. He understood how to love in a simple and primal way — to see all of nature as alive and interesting and intersecting. Jewish in heritage, his religion was science. His passions were endless — from eating fresh herring and smoked salmon — to venerating colors, such as indigo and orange, and life's creations, from lemurs and ferns to cycads and

## Mark Your Calendars 2016

**3rd International Conference on Heart & Brain**  
February 25-27, 2016  
Paris, France

**XXV European Stroke Conference**  
April 13-15, 2016  
Venice, Italy

**9th World Congress for Neurorehabilitation**  
May 10-13, 2016  
Philadelphia, Pennsylvania

**5th International Conference - Advances in Clinical Neuroimmunology**  
June 17-18, 2016  
Warsaw, Poland

**5th European Headache and Migraine Trust International Congress**  
Sept. 15-18, 2016  
Glasgow, United Kingdom

sea urchins. In being himself, following his heart, exposing his feelings and thoughts, he made this world richer and more special.

The legacy of a man is impossible for his friends and contemporaries to measure. Yet for Sacks, it is a safe bet that his writings

see OLIVER SACKS, page 13

## BOOK REVIEW

### *Palliative Care in Amyotrophic Lateral Sclerosis: From Diagnosis to Bereavement, 3rd Edition*

Ed. David Oliver, Gian Domenico, Wendy Johnston

New York: Oxford University Press  
326 Pages, with index

BY COLIN QUINN, MD

“Nothing we can do.” This is a commonly used phrase when discussing the management of amyotrophic lateral sclerosis with recently diagnosed patients. It is often uttered at a time when patients are at their most vulnerable. They have just discovered they have a relentlessly progressive neurodegenerative disease and simultaneously they are left with the impression that they are on their own because there is “nothing we can do.”

In more than 20 concise and thoughtful chapters, *Palliative Care in Amyotrophic Lateral Sclerosis* provides an excellent guide for clinicians and patients regarding the particular needs

of patients with ALS and their families, from diagnosis to death.

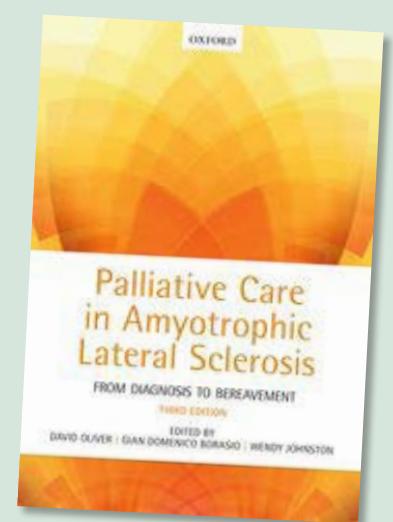
For many patients, the journey with ALS begins at diagnosis, and this is the focus of the opening chapter. As there is not yet a distinct biomarker for ALS, exclusion of other conditions is a critical part of the diagnostic approach, and is well described here. Up-to-date information regarding new genes associated with ALS and new understandings of the pathology behind ALS are briefly discussed.

The chapters which immediately follow include an honest and data-driven discussion covering both the purpose and challenges in delivering palliative care to ALS patients and an approach to breaking the news of an ALS diagnosis.

The subsequent chapters are devoted to a wide range of specific issues regarding the needs of patients, from frontotemporal dementia to frozen shoulder. All chapters provide clinically relevant

information (“90% [of patients with ALS] are able to die peacefully”) and detailed descriptions of the variety of approaches to deal with the problems facing this patient population. The tone is non-judgemental and inclusive of a variety of points of view, particularly regarding physician-assisted suicide and complementary and alternative medicines.

The chapters are written by authors with a depth and breadth of experiences on particular topics. This is demonstrated by a clear understanding of the variety of challenges facing patients and the pros and pitfalls of interventions. One minor criticism of this multiple-author approach is that there is often overlap between chapters and, at times, this means that the information in one portion of the book maybe somewhat inconsistent or incomplete when compared to another section. For example, in Chapter 7 (Control of Symptoms:



Dysphagia), scopolamine is the first medication listed as a potential intervention for sialorrhea, however in Chapter 9 (Pain, Psychological distress and Other Symptoms), scopolamine is not mentioned at all.

This one minor critique aside, this should be required reading for anyone involved in the management of patients with this ALS. While there may be no cure for this disease, there is a great deal we can do. •

# Global Neurology: Lessons Learned From Cambodia

BY SOMA SAHAI-SRIVASTAVA, MD

Cambodia is a Southeast Asian country of 15 million people with a per capita annual income of \$1,080. For 100 years until 1953, it was a French colony, followed by formation of a kingdom. In 1970, civil war led to the rise of Pol Pot and his Khmer Rouge communist agenda, a classless society with no economy. Under Pol Pot (1975–1979), the educated class was targeted, and 2 million to 3 million Cambodians were executed. Only a handful of doctors remained, as many died or left the country.



Soma Sahai-Srivastava

In my many trips to Cambodia in the last decade as a solo volunteer, I realized there are no short-term volunteer opportunities for neurology clinical care, unlike other specialties, such as emergency medicine, pediatrics and surgery. No neurology outpatient clinics or inpatient specialized programs existed until recently. There were only three neurologists in the country reported in 2012 (Loo, 2012). Currently there is no adult or pediatric neurology residency program. Pediatric patients with epilepsy, autism or developmental disorders are treated in a tertiary care mental health clinic by psychiatrists. The first internal medicine residency program launched in 2011.

I realized that our first priority was clinical education and curriculum development rather than patient care, since neuroscience education at all levels — undergraduate, medical school and postgraduate — is lacking in modern Cambodia. There are only four pathologists in the country; none are neuropathologists. Anatomy teaching does not include 3-D models or cadaver or animal dissection.

With the help of an educational two-year grant award from the WFN, a neurology outreach program for Cambodian health care professionals was convened July 25–Aug. 10, 2015, in Cambodia.

Our first goal was the development of appropriate undergraduate and residency neurology curriculum in collaboration with the only government academic medical center, the University of Health Sciences (UHS), which sets the curriculum for undergraduate and postgraduate education in Cambodia for all academic institutions. We met with educational leaders and reviewed the current curriculum, especially in context of a standard Western neurology curriculum. Challenges to establishing a standard neuroscience curriculum were identified and included lack of cadaver training and neuroanatomists in Cambodia. We decided to establish of two neurology teaching modules for their Train-the-Trainers program—a basic neurosciences module and a clinical neurology module.

Our second goal was to provide workshops on basic clinical neurology skills to health care professionals in all the major cities in Cambodia. We conducted a two-week hands-on session for 50 residents at UHS in Phnom Penh, covering internal medicine, psychiatry and neurosurgery. Tools used for these seminars included PowerPoint presentations, a brain model for basic neuroanatomy, a neurological examination video, neurology tool kits for neurological examination, and pre-test and post-test outcome evaluations. We produced a video on neurological examination and used brain models as a teaching tool. Fifty neurology tool kits were distributed to the residents, the contents of which included a Snellen eye chart, penlight, dermatome chart, tongue blade, reflex hammer, tuning fork and pins. We also taught at the University of Puthisastra, where 150 medical students received three days of neurology education.



Residents at the University of Health Sciences undergo a two-week hands-on session covering internal medicine, psychiatry and neurosurgery.

Teaching rounds were held for a neurology inpatient team comprising internal medicine residents and faculty from several hospitals, including Calmette Hospital, Kossamak Hospital and Khmer Soviet Friendship Hospital in Phnom Penh. In addition, we visited the Children's and Adolescent Mental Health Referral Center at Chey Chumneas Hospital in the Takhamu-Kandal Province, where we held a half-day seminar and hands-on teaching session on neurological examination along with distribution of neurology tool kits. In the beautiful colonial city of Battambang, we conducted teaching rounds in the outpatient clinic over two consecutive days for children up to 18 years with neurological disorders, including epilepsy and developmental disorders. This program was held at the Outpatient Free Clinic of the Battambang Catholic Church. We also trained physiotherapists in the department of physiotherapy on basic neurological skills.

We then traveled to Siem Reap, where we met with the Deputy Director of the Apsara Authority, the government agency that supervises all national monuments and will be setting up future workshops at the 400-square-kilometer Angkor Heritage Complex (one of the seven ancient wonders of the world) in Siem Reap for

health care professionals.

Some of the lessons learned during our trip:

1. Barriers to global neurology in developing countries include lack of an organized clinical setup for patient care.
2. It is important to understand the current state of neuroscience curriculum to determine the needs.
3. Often one needs to return to the drawing board with basic neuroscience.
4. Initiate clinical education of existing medical docs (our focus: psychiatry, internal medicine and neurosurgery).
5. Developing many levels of peer-to-peer relationships improves networking and learning (e.g., resident to resident, faculty to faculty).

We will return to Cambodia in June 2016 for two weeks with the following objectives:

1. To provide an additional year of continuity to our neurology basic training program and provide neurology toolkits for Cambodian health care professionals.
2. To train Cambodian neurology trainers in two neurology modules: basic and clinical neurosciences.
3. To establish and deliver the first neurology skill lab for international program students at UHS.
4. To establish and deliver a revised curriculum and course syllabus design for a neurology module undergraduate medical students.
5. To develop curriculum for neurology residency training, with the goal of assisting in readiness in establishing the first residency program in the fall of 2016.
6. To develop culturally, geographically and medically relevant assessment exercises that include formative assessment (i.e., pre-test, post-test) and summative exams with rating scores that are consistent with learning objectives. •



At the University of Puthisastra, medical students take part in three days of neurology education.

Soma Sahai-Srivastava, MD, is associate professor of neurology, medical director of the neurology clinics, and director of the Headache Center at the University of Southern California, Los Angeles.

# Fellowship Awardee from India Presents Research

**S**udip Paul, assistant professor, department of biomedical engineering, North-Eastern Hill University (NEHU), Shillong, India, was given the opportunity to present his research as a poster presentation. He presented “Wavelet-Based Analysis as a Tool to Evaluate the Degree of Neuronal Insult in Animal Model of Ischemic Stroke” at the 45th Annual Meeting of Society for Neuroscience Conference, held Oct. 17–21, 2015. He was awarded the Junior Traveling Fellowship 2015 by the World Federation of Neurology (WFN) with an amount of GBP 1000 toward his travel to the United States.

Paul works in the field of electrophysiology and is concerned with brain signal

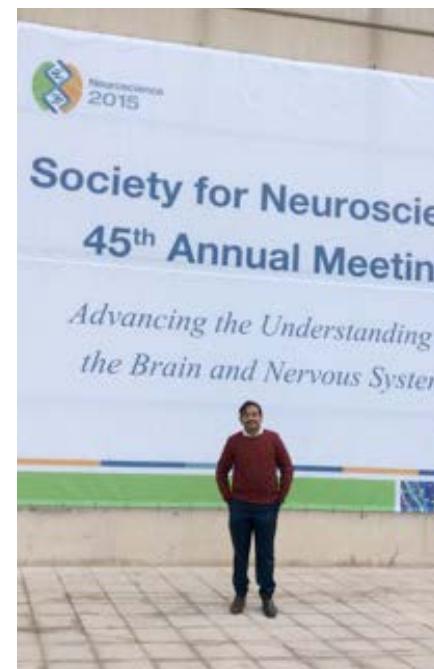
analysis in the living system.

“I was so much benefited in the form of exposure to my research field, which provided me with an opportunity to learn about different aspects of brain signal acquisition and its interpretation to derive a fruitful result from the experimentation. This also provided me with a platform to be exposed to the cutting-edge advancement in the field of neuroscience,” he said.

Paul, who interacted with stalwart scientists working in this area, added that he was thankful to the NEHU administration and departmental faculty members for their support and especially to Dr. Tapas Kumar Sinha and the constant research activity provided by him. •



Sudip Paul's poster investigation looks at “Wavelet-Based Analysis as a Tool to Evaluate the Degree of Neuronal Insult in Animal Model of Ischemic Stroke.”



Sudip Paul, WFN Junior Traveling Fellowship awardee, travels to the 45th Annual Meeting of the Society of Neuroscience in Chicago to present his research.

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

BY JOHN D. ENGLAND, MD  
EDITOR-IN-CHIEF

**F**ollowing the advice of the Editorial Board members for the *Journal of the Neurological Sciences (JNS)*, we have reorganized the contents index for each issue. This has been done to enhance perusal of the contents by readers of the journal.

The contents are now organized

into orderly section headings of Editorials, Reviews, Original Articles, Short Communications, Letters to the Editor and Book Reviews. We

still welcome unique and informative case reports, but most of these are now published as Letters to the Editor.

Additionally, we have reserved space for a President's Column, which is written by the president of the World Federation of Neurology. The inaugural President's Column, entitled “Neurodegenerative Noncommunicable Diseases (Neurology NCDs). Where are we now?” by President Raad Shakir, was published in the Sept. 15, 2015, issue of *JNS*. Of course, all of these articles are accessible with the [online version of JNS](#).



John D. England

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

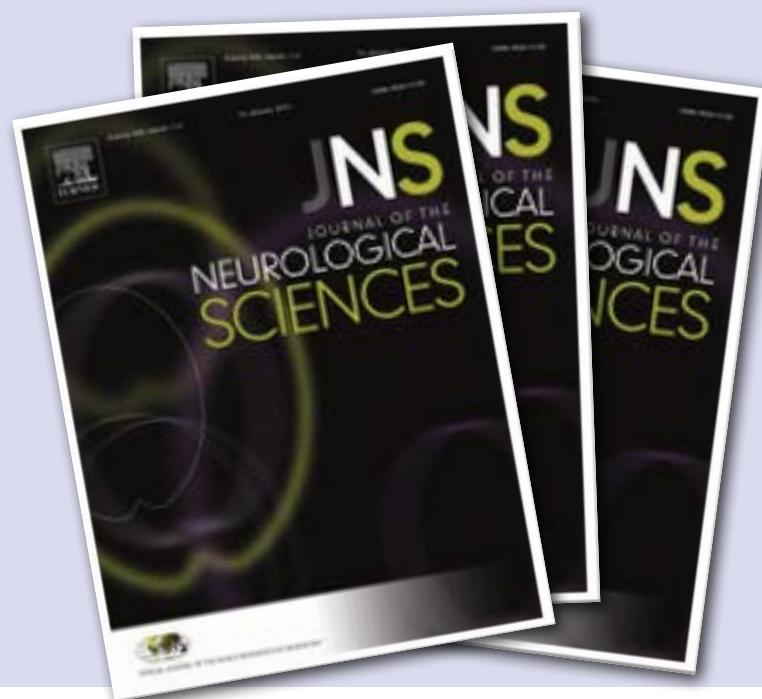
1. Anna Rostedt Punga, et al. from the department of neuroscience in Uppsala, Sweden, summarize data from 71 patients with autoimmune myasthenia gravis patients, which suggest that the immuno-microRNAs miR-150-5p and miR-21-5p are a biological marker for the disease. They compared sera from 71 patients with myasthenia gravis, 23 patients with other autoimmune disorders and 55 healthy controls. The levels of miR-150-5p and miR-21-5p were significantly elevated in the sera from patients with myasthenia gravis compared to both healthy controls and patients with other autoimmune diseases. Additionally, both of these microRNAs were significantly reduced in the patients with myasthenia gravis on immunosuppressive medications compared to the patients with myasthenia gravis who were not on immunosuppressive medications. If corroborated by additional studies, this report suggests that circulating miR-150-5p and miR-21-5p may be a disease-specific biological marker for autoimmune myasthenia gravis. [A.R. Punga, M. Andersson, M. Alimohammadi, T. Punga, “Disease Specific](#)

[Signature of circulating miR-150-5p and miR-21-5p in Myasthenia Gravis Patients,” J.Neurol.Sci. 356 \(2015\) 90-96.](#)

2. In an accompanying editorial, Fredrik Piehl and Maja Jagodic explain what microRNAs do and comment on their potential as novel biological markers and drug targets for inflammatory neurological diseases. This short paper provides an excellent primer on microRNAs. As the authors summarize, miRNAs are important regulators of biological processes and are the most abundant class of gene regulatory molecules.

Understanding how miRNA expression is altered in various diseases is an important and evolving area of research. Their study should result in important new insights into disease mechanisms and perhaps lead to new avenues of treatment. [F. Piehl, M. Jagodic, “MicroRNAs as Promising Novel Biomarkers and Potential Drug Targets for Inflammatory Neurological Diseases,” J. Neurol. Sci. 356 \(2015\) 3-4.](#) •

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



**WORLD CONGRESS***continued from page 1*

a WHO Symposium. A former gastroenterologist, his opening address was replete with illustrative and amusing anecdotes. Importantly, he highlighted the lack of neurologists as evidenced in the upcoming latest edition of the *Atlas of Neurology* (a joint WHO and WFN initiative), and the WHO Action Plan 2013–2017 concentrating on noncommunicable diseases. Dr Chestnov drew attention to the following points.

1. Epilepsy is now a WHO Assembly agenda item where the goals are to strengthen effective leadership, improve provisioning of care, integrate epilepsy into primary health care services and increase access to medications.
2. It is estimated that in 2015, 47 million people globally have dementia, and this figure will double every 20 years. The global cost in 2010 was estimated at \$US604 billion.
3. Finally, he acknowledged the importance of the First Ministerial Conference on Global Action Against Dementia held earlier this year.

This important plenary session was completed by an authoritative review by Prof. Ingrid Scheffer of Melbourne, Australia, describing how genetics is influencing the management of epilepsy.

The scientific program was by all accounts one of the highlights of the meeting. Throughout, there were superb plenary lectures and symposia on all major neurological topics, providing clear insight into the robust pursuit of knowledge of basic science and its translation to clinical practice. It is only possible to mention a few of these.

Prof. Charlotte Cordonnier of Lille, France, addressed the vexatious issue of cerebral microhemorrhages and their relation to amyloid angiopathy, their management and risks with current stroke prophylaxis. Their investigation with the use of 7T Tesla to define stroke risk and new prospective studies defined lesser risks from ischaemic prophylaxis therapy for certain defined stratified groups.

Prof. Jes Olesen in presenting the Yahr Award Lecture reviewed the current state of headache research and treatment, describing the new version of the International Headache Classification, to be incorporated in ICD11, and then aspects of migraine. He drew attention to three



**World Health Organization (WHO) Assistant Director-General of Noncommunicable Diseases and Mental Health Oleg Chestnov leads a WHO symposium.**

monogenic loci for familial hemiplegic migraine. He contrasted this with the 42 loci identified in the International Headache Genetics Consortium Genome-Wide Association Study in common migraine, nine of which also affect gastrointestinal tract musculature. In reviewing treatment, he lamented the lack of medications to reduce migraine aura, especially tonabersat because of the high cost the effectiveness of the angiotensin-II receptor antagonist candesartan as prophylactic, the need for calcium gene related peptide monoclonal antibodies for chronic migraine and the development of headache centers to hasten research and its translation to clinical care.

Profs. Michael Brainin, Geoffrey Donnan and Nick Ward gave an

overview of the long-term perspective in stroke, tackling early diagnosis, secondary prevention and brain recovery in a high-class exposition, respectively.

Prof. Neil Scolding's thoughtful and practical lecture on the role of cell therapy in central nervous system disorders was a useful update in this much-anticipated therapeutic approach. Dr. Jon Stone's lecture on the identification and management of functional disorders also was a well-received review of the current state of this sometimes difficult to manage topic. This theme also was the basis for the excellent review given by Prof.

Mark Hallett of the National Institutes of Health during the Victor and Clara Soriano Award Lecture. His talk combined the electrophysiological study of motor acts with the psychology of the perception of functional and normal movements. Prof. Giacomo Rizzolatti updated the conference on mirror mechanisms and their clinical relevance together with the essential role of mirror

neurones in this concept.

Prof. Kazuo Fujihara from Sendai, Japan, reviewed the current state of understanding of neuromyelitis optica spectrum disorders, highlighted the relatively uniform worldwide prevalence of this condition, the recently published *Consensus Diagnostic Criteria* and the increasing role of AQP4 seropositivity in the diagnosis.

Prof. Alan Thompson, of the University College London, gave an impeccably balanced update on the current state of research and treatment, the global initiative in progressive multiple sclerosis and the recent report of the first large-scale phase III trial of early anti B-cell treatment to modify the disease course.

Prof. Thomas Südhof, 2013 Nobel laureate in physiology or medicine, treated delegates to an enthralling lecture on

**The scientific program was by all accounts one of the highlights of the meeting. Throughout, there were superb plenary lectures and symposia on all major neurological topics, providing clear insight into the robust pursuit of knowledge of basic science and its translation to clinical practice.**

“Neurexins and Company: Towards a Molecular Logic of Neural Circuits,” describing their role in the function and dysfunction of neural networks in schizophrenia, autism and intellectual disability.

On the last day, the final Tournament of the Minds was held. The final teams buzzed in for their first right to answer to a question with a penalty for an incorrect answer. It was contested by the

United Kingdom, Australia and Japan, and finished in that order. Congratulations to the United Kingdom team, which finished well ahead of the scheduled time for the completion of this session. The tournaments was followed by the closing ceremony with the presentation of a gavel to Prof. Yoshikazu (Kaz) Ugawa, President of the XXIII World Congress of Neurology, from the XXII World Congress of Neurology President Renato Verdugo, in order to have the 2017 Congress called to order.

**Summary**

A total of 272 oral lectures, and 36 teaching courses with three or four lectures each were presented; 1,230 posters were displayed from 1,668 abstracts, and there were five satellite symposia.

There were four named lectures:

1. Yahr Award Lecture: Prof. Jes Olesen, “New Concepts in headache”

2. Victor and Clara Soriano Award Lecture: Prof. Mark Hallett, “The Physiology of Will”
3. The Fulton Society Symposium-Soriano Award Lecture: Prof. Giacomo Rizzolatti, “The Mirror Mechanism and Its Clinical Relevance”
4. Bharucha Award Lecture: Prof. Richard Hughes, “Guillain-Barré Syndrome and CIDP: One disease or Many?”

The World Federation of Neurology also presented medals to two distinguished recipients. The first was for Service to Neurology and was presented to Dr. Michel Dumas for services to the development of neurology in Africa and elsewhere. The second was awarded to Prof. Shoji Tsuji of Japan for scientific achievements in neurology. Dr. Gallo Diop, WFN trustee, and Prof. Roger Rosenberg, University of Texas Southwestern, read the citations, respectively.

**Social Event Program and WFN Business**

The welcome reception was held immediately after the opening ceremony and was well attended. The Chilean networking event was held out of the city at a well-known winery and was enjoyed by the participants, after they recovered from the long bus ride inflicted by the Santiago evening traffic rush.

At the World Federation of Neurology Council of Delegates meeting held Nov. 1, a number of reports were presented, elections held and votes taken. Among these was the tightest decision for a WCN venue so far. For the XXIV World Congress of Neurology in 2019, Dubai triumphed with the slimmest of margins over Cape Town. Either would have been a fitting site for the XXIV World Congress of Neurology, a likely reason for the closeness of the final result. Dr. Richard Stark was elected to the new position of treasurer allowing Prof. Wolfgang Grisold to have more time for the secretary general's role. Dr. Morris Freidman of Canada defeated an excep-



**Prof. Shoji Tsuji receives recognition for scientific achievements from WFN President Raad Shakir.**

tional field of candidates for the position of elected trustee. The WFN wishes these new members of its executive team an enjoyable and productive term.

An issue, which arose and caused the trustees and organizers considerable concern, was the procurement of visas for the Chile World Congress of Neurology. Many delegates were forced to go to extreme

see **WORLD CONGRESS**, page 9



**2013 Nobel Laureate in Physiology and Medicine Prof. Thomas Südhof presents a lecture on neurexins.**

## WORLD CONGRESS

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lengths to obtain a visa. A number were unable to complete this, and even some of those who did obtain a visa were restricted to the duration of the Congress. The Council of Delegates recognized the difficult circumstances members of many national societies found themselves in as a consequence of the large flows of migrants in many parts of the world. In the future, the World Federation of Neurology hopes not only to have those bidding for future venues to declare freedom from restricted access to them, but also to identify and forewarn delegates of any practical difficulties they may encounter. These items will be placed on the website well before each upcoming World Congress of Neurology.

Finally, at the Trustees Meeting held during the XXII World Congress of Neurology, the suggestion made at the Kyoto site visit in September 2015 to restrict the number of faculty members to just more than 200 was endorsed with twin aims. The first was to control the cost of the World Congress of Neurology, but also to move to full funding of faculty members. The World Federation of Neurology recognizes that the best calibre lecturers are in a competitive environment and that it must make the invitation to the World Congress of Neurology most desirable.



Delegates gather to share ideas during the Congress.

### Conclusion

As the curtain closes on the XXII World Congress of Neurology in Santiago, Chile, we should remember the spirit of giving so generously displayed by the Chilean society, the high level of educational endeavor, the friendships made and renewed, and the scientific, topical and cultural discussions that are part of the intangible benefits we and our colleagues derive from the World Congress of Neurology as we look forward to the XXIII World Congress of Neurology in Kyoto in 2017. •

William M. Carroll, MD, is WFN First Vice President and Chair of the Congress Committee.

## BRAIN HEALTH

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brain health perspective on MS, presenting recent data underpinning its scientific basis. People with relapsing–remitting MS can lose brain volume up to seven times faster on average than age-matched controls, according to a 2015 meta-analysis of clinical trials.<sup>1</sup> Up to a point, this damage can be compensated for by neurological reserve — the brain's finite capacity to reroute signals or adapt undamaged areas to take on new functions.<sup>2,3</sup> Preserving neurological reserve protects against cognitive decline<sup>4</sup> and physical disability progression<sup>5</sup> in people with MS. Once neurological reserve is exhausted, however, the long-term progressive phase of the disease will be unmasked, Vollmer argued. Adopting a therapeutic strategy that preserves neurological reserve by minimizing disease activity therefore should be of primary concern when people with MS and their clinicians make treatment decisions.

Shared decision-making relies on education. People with MS need to understand the potential long-term effects of the disease as early as possible after diagnosis, stressed George Pepper. As co-founder of the patient forum Shift.ms, Pepper stated that engaging people with MS in their own health care could be “the blockbuster drug of the 21st century.”<sup>6</sup> He concluded by encouraging health care professionals to help people with MS to take active roles in treatment decisions and disease management, starting at the time of diagnosis.

Early intervention is vital, in order to preserve cognitive function. This was

emphasized in a joint presentation by Dr. Gisela Kobelt and Professor Helmut Butzkueven, who examined MS from economic and real-world perspectives. Dr Kobelt presented some of her own economic data demonstrating that the greatest effects of the disease on employment occur at relatively low levels of physical disability.<sup>7</sup> Professor Butzkueven concurred, and referred to results from a recent study showing that people with cognitive impairment at diagnosis were three times more likely to reach a Kurtzke Expanded Disability Status Scale score of 4.0 and twice as likely to develop secondary progressive MS 10

years after diagnosis.<sup>8</sup> This underscores the importance of the report's recommendation of aiming to alter the disease course through lifestyle measures and early treatment with a disease-modifying therapy.

Improved treatment access will ultimately come from demonstrations of cost-effectiveness. Assessing the difference that treatment makes to long-term health and economic burden is of vital importance in a chronic progressive disease. To date, however, long-term economic evaluations largely have been based on models owing to a lack of data, explained Dr. Kobelt.

By monitoring disease activity and recording data in registries, health care professionals can generate robust real-world evidence that can be used to inform individual treatment decisions. Butzkueven demonstrated the power of registry data to compare the effectiveness of different disease-modifying therapies in propensity-matched people with MS.<sup>9</sup> The overall conclusion was that the biggest change in long-term health and economic outcomes could come from targeted intervention to

maximize lifelong brain health — and that real-world registry data should be generated and used to test whether this is the case (see Fig. 1).

Summing up, Symposium Chair Giovannoni stated: “I'd like every clinician, every health care professional, to think that someone with MS is giving us their brain to protect. It's our responsibility to make sure that they get to old age with a healthy brain, so that they can withstand the ravages of aging. As a treatment philosophy, it's as simple as that.”

Health care professionals who believe in this treatment philosophy are invited to pledge their commitment to embrace the recommendations of the report. [Download the full report.](#) •

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Gavin Giovannoni, MD, provided this piece on behalf of the MS Brain Health Steering Committee.

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## CALL FOR SUBMISSIONS

# Special Issue on ‘Neurological Diseases in South America’

This is a call for submissions of papers to a forthcoming special issue of *eNeurologicalSci (eNS)* on “Neurological Diseases in South America,” which will be published in July 2016. The guest editors of this issue welcome submissions of original manuscripts and reviews that deal with basic, clinical and epidemiological studies addressing research on neurological disorders in South America.

In particular, we invite research focusing on regional specific features related to epidemiology, diagnosis, clinical manifestations, and treatment strategies and outcomes. All submissions will be

peer reviewed and selected for publication based on scientific merit, novelty, timeliness and topical balance.

Before submission, authors should carefully read over the journal's [Author Guidelines](#).

Prospective authors should submit an electronic copy of their complete manuscript through the journal [Manuscript Tracking System](#).

For more information, visit the [website](#).

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# European ‘Wanderjahr’: Postgraduate Training in Nervous Diseases for Americans in the 1880s

BY PETER J. KOEHLER

“Medical students constitute the only class of students who in any considerable number follow the good old German custom of supplementing their regular course of study (*Lehrjahre*) by a season of travel (*Wanderjahre*) for the purpose of seeing how people in other places perform that work which is to occupy the remainder of their lives.” — Henry Hun, 1883

Since 2010, we have published a number of short papers on international relationships and exchange in the neurological community. It is of interest to note that the leading centers of medical education changed over the past centuries and thereby advanced international exchange. Italian (Padua) and French (Paris, Montpellier) universities were popular in the 16th and 17th centuries. Leiden (the Netherlands with Boerhaave and Albinus) became popular in the early 18th century, and later, during that century, the center moved to Edinburgh (with Whytt, Cullen and the Monros). Then, in the beginning of the 19th century, it was clearly Paris that, following the revolution, became a center of integrated medicine and surgery, attracting foreign students.

Of particular interest in the second half of the 19th century is the great number of foreign (American, Russian, Japanese, Scandinavian, etc.) students and



Thomas Neville Bonner (1923–2003)

physicians, who visited German-speaking countries between 1870 and 1914. The American medical historian Thomas Neville Bonner (1923–2003) stated that in this period, over 10,000 American physicians studied in Vienna, where some of the courses were given in English. He called it “the German magnet” and noted that “at least a third and perhaps a half of the best known men (and women) in American medicine of this era received some part of their training in a German (or Austrian) university: (Bonner, p.23).

The well-known American internist William Henry Welch, one of the founding professors of Johns Hopkins Medical School, opined that it was “conventional Mecca of American practitioners” and advised to “stick to Germany, where I find all the opportunities for learning pathology which I could desire.”

It is of no surprise that American medical education was influenced by returning physicians. Johns Hopkins University Medical School was organized according to the German model. In this period of increasing specialization in medicine, it was important for physicians to improve their knowledge in Europe.

As improvement of medical practice was considered more important than research, smaller numbers of (mostly younger) Americans visited other German universities, including Leipzig (Carl Ludwig), Heidelberg, Breslau and Strasburg, with the purpose to do scientific work. Although a minority, the latter persons were important for the origin of medical research in the U.S. The majority went for postgraduate training, in particular for improving skills in a clinical specialty. Some of the courses were organized to train the practical use of the ophthalmoscope, microscope, laryngoscope and stethoscope. In April 2011, I discussed the European peregrination of Bernard Sachs between 1878 and 1884.

## Features of Specialization in Medicine/Neurology

- Education/Medical Curriculum
- Neurological Practice/Special Hospitals
- Instruments
- University Chairs
- Societies
- Journals/Monographs
- Success of Specialization Determined by:
  - Economic Reward

- Social Prestige
- Ideology of Progress
- Influence of Public, etc.

## A Guide for Medical Students in Europe

In this issue, I wish to discuss a particular book that was published to help American students and physicians finding their way in Europe, notably Henry Hun’s *Guide to American Medical Students in Europe* (1883). Henry Hun (1854–1924) was a lecturer on diseases of the nervous system at the Albany Medical College. His father, Thomas Hun, one of the founders of this college, stayed in Europe for his postgraduate studies for six years (1830s), and although professor of the Institutes of Medicine, he gave lectures on the nervous system (in a period before specialization in neurology

started). Henry’s older brother Edward (1842–1890) became chair of diseases of the nervous system in Albany and was among the original members of the American Neurological Association, which was founded in 1875. Following graduation from Harvard Medical School, Henry Hun followed postgraduate courses in several European cities for over two years. He became profes-

sor of diseases of the nervous system at Albany in 1884. In the preface to his *Guide*, he noted that “Every year, a large number of Americans go to Europe to complete their medical studies. Unfortunately the great majority of these students have very little definite information about the different universities or about the way in which medicine is taught abroad, and on this account they lose much valuable time in getting to work.” The book has 151 pages, and, although we know he himself visited Vienna, Heidelberg, Berlin, Paris and London, most of the book is on German (speaking) universities and hospitals. As he did not visit all places described in the book himself, he received information from colleagues, acknowledging them in the preface: “For a large part of the information in the book, I am indebted to the kindness of many friends.” He admitted that some American centers provide good opportunities too.

Some students go to New York or the other large cities of America, but by far the greater number go to Europe, and



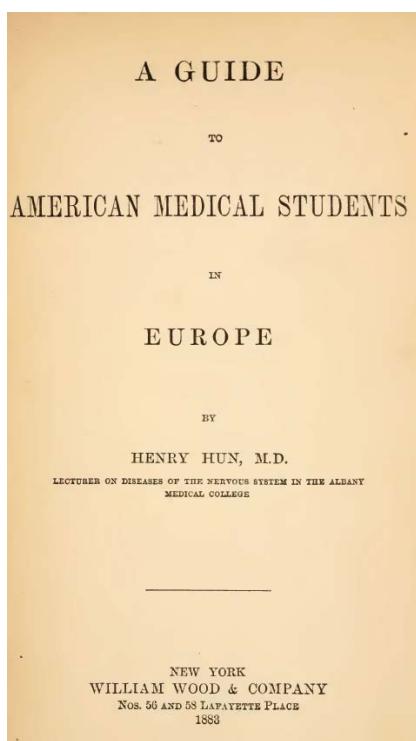
Theodore Meynert

especially to Germany. The reason for this is not difficult to understand. In our large cities, and especially in New York, there are certain clinics and opportunities of study that are probably unsurpassed in the world. But there is, undoubtedly, no place where a student can attend so many excellent clinics with so little loss of time, or where he can so well train his eyes and hands in methods of diagnosis and treatment, as in Vienna; while, if he is less anxious for clinical study, and wishes to train himself in laboratory work and methods, he can nowhere accomplish this so well as in Germany (Hun, p.1-2).

## Expenses, language and cultural activities

The *Guide* offered all kind of information, including the expenses to be expected. “By exercising the very strictest economy, a medical student could study in Germany for a year (one semester being spent in Vienna, the other in a smaller town) for between \$700 and \$800.” As for Berlin: “The cost of living in the best pensions varies from 120 to 200 marks (\$30 to \$50) per month” (Hun, p.35). And of course, the language needed consideration. “Even though the student has a fair knowledge of the German language, and can read

see WANDERJAHR, page 11



Henry Hun’s *Guide to American Medical Students in Europe*



Henry Hun



Wilhelm Erb

## WANDERJAHR

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it without much difficulty, he will find it greatly to his advantage to live in a German family for a couple of months, and to work at the language before he commences to attend lectures." However, he noted "the majority of the instructors can speak English more or less perfectly." He even paid attention to the cultural activities, such as art and music. "If Munich or Dresden be selected as the cities in which to learn German, the spare hours of the day may be devoted to the picture galleries," and "the Germans are a very music-loving people, and if the student is interested in music he can combine the study of that branch with the study of German."

### Neuroanatomy and Nervous Diseases

Most important of all, were his advises about specialization and for the aim of this essay, neuroanatomy and nervous diseases will be discussed. With respect to Vienna, he advised to go to the well-known neuroanatomist and psychiatrist Theodore Meynert.

Prof. Meynert lectures every day, except Saturday, from 12 to 1. On three days, he gives systematic lectures on the functions of the brain and their disorders. These lectures are very interesting, but very difficult to understand. Twice a week he exhibits patients. On Saturday, from 10 to 12, he demonstrates the anatomy of the brain. He also allows students to work in his laboratory on the finer anatomy of the nervous system. His work and lectures are very interesting, but he is very irregular in his attendance (p.19).

"But the study of nervous diseases is not satisfactory in Vienna," although Moriz Benedikt gave good courses on electro-diagnosis and therapeutics. Hun considered Berlin and Heidelberg (Friedreich, Erb) the most important universities for nervous diseases. In Berlin the use

of electricity in diagnosis and treatment was given by Martin Bernhardt (of the Bernhardt-Roth syndrome, a.k.a. meralgia paresthetica) and Ernst Julius Remak (son of Robert Remak). Hun expressed mixed feelings about the course of nervous disease by Carl Wernicke. They were "very good, but rather abstruse lectures on the general principles of nervous diseases, without much regard to any special diseases. He does not show many patients." He also mentioned the lectures given by Carl Westphal, demonstrating that psychiatric and nervous diseases at most German universities were still taught as one discipline.

On the first two days, he shows insane patients. On the last day, he shows patients with nervous disease. He devotes the first part of each exercise to a systematic lecture, and, in the last part, he exhibits two or three patients. Prof. Westphal devotes himself rather to showing the disease in its clinical aspect than to discussing the nature of the process taking place in the brain, and in this respect the course is in decided contrast to that of Prof. Meynert in Vienna (Hun, p.44).

As for physiology, he, of course, referred to the famous physiologist Emile du Bois-Reymond, who "gives experimental lectures on physiology, and he allows students to work in his physiological laboratory. He has a very handsome and well-arranged lecture-room and laboratory." Hun also referred to Hermann Munk.

In Heidelberg Nikolaus Friedreich (of the well-known hereditary ataxia) and Wilhelm Erb were Hun's favorites.

"Prof. Friedreich used to hold an excellent medical clinic. He visited the wards daily with the students. He assigned cases to the students and criticized their examinations. He also gave systematic lectures on the theory and practice of medicine. His successor, Prof. Erb, will probably conduct the clinic in the same way, and will doubtless devote much time to the discussion of nervous diseases'.

French and English centers only form a small part of Hun's book. Various Paris hospitals are described, but for nervous

diseases the Salpêtrière was mentioned noting that "Prof. Charcot was last year appointed professor of nervous diseases, and this year he will hold a clinic of diseases of the nervous system at the Salpêtrière on Thursday and Sunday." In London, of course the National Hospital (for the paralyzed and epileptic) was mentioned including "Physicians, Dr. Ramskill,

Radcliffe, Hughlings-Jackson and Buzzard; physicians for outpatients, Drs. H. Charlton Bastian, A.Y. R. Gowers, and D. Ferrier Assistant Physicians, Drs. J. A. Ormerod and P. Horrocks."

Well-known Scientists who Visited European countries, German speaking in particular

- Moses Allen Starr: Erb, Meynert, Nothnagel (Charcot)
- James Jackson Putnam: von Rokitansky, Meynert (H. Jackson)
- William Gibson Spiller: Obersteiner,

Oppenheim, Edinger (Dejerine, Gowers)

- Switzerland
- Monakow -> Gudden

### Russia

- Kozhevnikov -> Germany
- Korsakow -> Meynert
- Sechenov -> MD in Vienna, Helmholtz, Du Bois-Reymond, Ludwig
- Bekhterev -> Flechsig (Leipzig), Du Bois-Reymond, Meynert, Westphal, Charcot, Wundt
- Pavlov -> Ludwig (Leipzig), Heidenhain (Breslau)

### Sweden

- Henschen -> Ludwig and Cohnheim
- England
- Sherrington -> Goltz
- Head -> Ewald Hering (Prague)

### Italy

- Luciani -> Leipzig

### Holland

- Ariëns Kappers -> Edinger

It is clear from the above that American neurology in the late 19th century was influenced by European, in particular German, knowledge in a high degree. Around the turn of the century, interest in American medical knowledge led to the start of migration in opposite direction. Several high-ranking German visitors, among whom neuroscientists, visited the U.S., including Ehrlich, Forel, Freud, Helmholtz,

Hirschberg, Robert Koch, Carl Ludwig, Waldeyer, Sauerbruch and many others would follow. •

### Further reading:

- [Bickel MH. Thomas N Bonner \(1923–2003\), medical historian. J Med Biogr. \(2014\);Jul 1.](#)

Bonner TN. American Doctors in German Universities. Lincoln: Nebraska University Press, 1963.

- Hun H. Guide to American Medical Students in Europe.
- [Lanska D. Henry Hun \(1854–1924\). J Neurol Neurosurg Psychiatry,70 \(2001\);349.](#)

## NEUROLOGY

continued from page 2

who require such care.

A unique solution to this paradox is to have neurologists who practice high-technology neurology provide continuing education to neurologists involved largely in community care. This allows the Academy to be self-sufficient and caters to the educational needs of all. The scientific program of IANCON 2015 reflected the principle to ensure that public perception within the nation, as well as internationally, befitting. The distinguished guests included Shabana Azmi, a noted film actor and social activist, and WFN President Prof. Raad Shakir, president, World Federation of Neurology.

The Conference featured 14 breakfast

and lunch symposia, a CME, four breakfast symposia, two guest lectures, four orations and 267 papers.

To cater to the tastes of trainee neurologists, a barbecue quiz — with an initial countrywide online round and a final round during the conference — and a clinic-pathological conference were other hallmarks of the conference.

Even as India needs many more neurologists, the number is increasing with 171 trained neurologists added each year. The scenario is certainly encouraging, as the IAN is becoming a stronger constituent of the World Federation of Neurology, the support of which we gladly acknowledge. •

Gagandeep Singh is IAN secretary, Arabinda Mukherjee is IAN president and Pardeep Kumar Maheshwari is IANCON 2015 organizing secretary.



WFN President Raad Shakir greets Shabana Azmi during the inaugural ceremony.

# Teaching Courses Expand Education at WCN

Table 1: Teaching Courses

Session ID	Topic
TC 1	RARE CASES IN CLINICAL PRACTICE (TOURNAMENT COMMITTEE)
TC 2	STROKE
TC 3	COMMON MISTAKES IN EEG READING
TC 4	NEUROREHABILITATION
TC 5	CNS INFECTIONS
TC 6	HEADACHE
TC 7	EDUCATION IN NEUROLOGY
TC 8	YOUNG NEUROLOGIST — PROFESSIONAL CAREER PLANNING
TC 9	CHILD NEUROLOGY
TC 10	CLINICAL NEUROPATHOLOGY
TC 11	VIDEO SESSIONS SEIZURES SEMIOLOGY
TC 12	NEUROPATHIC PAIN-ADVICE FOR CLINICAL PRACTICE
TC 13	BOTULINUM TOXIN WORKSHOP
TC 14	NEUROIMMUNOLOGY AND MULTIPLE SCLEROSIS
TC 15	NEUROLOGY AND PSYCHIATRIC BOUNDARIES
TC 16	AUTOIMMUNE PERIPHERAL NERVES DISORDERS
TC 17	NEUROLOGY AND WOMEN
TC 18	AUTONOMIC NERVOUS SYSTEM
TC 19	DEMENTIA
TC 20	PALATUCCI ADVOCACY
TC 21	TRANSCRANIAL DOPPLER WORKSHOP
TC 22	SINGLE FIBER 'EMG' WORKSHOP
TC 23	CAREERS IN NEUROLOGY IN A GLOBALIZING WORLD
TC 24	MOVEMENT DISORDERS: EMERGING DIAGNOSTIC AND TREATMENT ASPECTS IN PARKINSON'S DISEASE AND RELATED DISORDERS
TC 25	TRANSCRANIAL MAGNETIC STIMULATION (TMS): BASIC MECHANISMS AND CLINICAL APPLICATION WORKSHOP 25
TC 26	PALLIATIVE CARE
TC 27	NEURO-ONCOLOGY
TC 28	NEURO-OPHTHALMOLOGY
TC 29	MOTOR NEURON DISEASE
TC 30	MUSCULAR DISORDERS
TC 31	NEUROLOGY IN THE EMERGENCY ROOM
TC 32	CURRENT MANAGEMENT OF EPILEPSY FREE
TC 33	NEUROMUSCULAR FREE
TC 34	THE MODERN MANAGEMENT OF MULTIPLE SCLEROSIS FREE
TC 35	THE TOP TEN ADVANCES IN CLINICAL NEUROLOGY FREE
TC 36	SLEEP DISORDERS

The free early morning teaching courses have remained the most visited teaching courses, despite the early hour. Teaching courses on education, advocacy and career received little attendance, yet these topics are inherent topics of the WFN. Also, palliative care received little attention as teaching courses. This shows that the topic needs promotion within the scientific sessions. All teaching courses will be available on the WFN website after the Congress.

BY WOLFGANG GRISOLD

The WCN took place Oct. 31-Nov 5, 2015, at the CasaPiedra Conference Center in Santiago, Chile, with 3,500 delegates from 112 countries participating and creating a joint sense of neurology worldwide. The lectures from the World Health Organization (WHO) and the presentation of the new *WHO Atlas of Neurology* showed the disparity of neurological workforces around the world and documented the importance of the WFN activities in the work with global organizations. One of the goals and aims of the WFN is to spread neurological development and neu-

ties, are well appreciated by attendees.

In Chile, 36 teaching courses were held. The list (Table 1) shows the topics presented, which helped to disseminate educational news and expert knowledge. Teaching courses offer attendees the advantage of being in a smaller group and interacting with renowned experts. This facilitates a climate of interaction by allowing questions and discussion of opinions.

One special component of the WCN teaching courses are the early morning free teaching courses, a one-hour teaching session presented by a single expert in the field. This expert has the privilege to create his or her talk in the form of a lecture,



Cynthia L. Harden presents a morning teaching course on epilepsy.

rological science and update participants on current issues, but also to highlight new neurological fields of development.

Scientific sessions and topics are an excellent venue and bring participants close to the leading persons in the field. This concept was successfully used in plenary lectures and scientific main topic sessions.

The WFN also has long kept the tradition of offering teaching courses at its Congress. This concept has been broadened since Marrakesh, as the WFN teaching courses now are being offered on all days of the Congress. The teaching courses were co-chaired by Sergio Castillio (local committee, Chile) and Wolfgang Grisold (teaching course committee, WFN). The topics presented include many general and common topics, such as stroke, dementia, epilepsy and others.

Also, several courses with hands-on opportunities were offered to include and engage participants in practical issues, such as EMG, ultrasound and botulinum toxin treatment. Experience at the WCN in Marrakesh and Vienna has shown that these types of highly interactive teaching courses, despite often technical issues and difficul-

deviating from the usually shorter teaching course lectures, and allowing the speaker to emphasize and shape the message that he or she considers important. Despite the early time of these teaching courses, the number of participants was between 100 and 200 per course (and 339 for the topic of epilepsy). The topics included MS (95), chronic inflammatory demyelinating polyneuropathy (125) and the top 10 advances in neurology (95).

Knowledge, skills and tutoring from experienced lecturers cover many aspects of neurology. The issue of palliative care is a topic with an increasing scientific basis. Still palliative care is often confounded with end of life care, or worse, a situation of helplessness. The WFN has established a Research Group on this topic, and the Teaching Course on palliative care was an important step in establishing this important topic into our future curricula.

All neurologists, working in any part of the world, also are aware of the importance of training, lecturing and teaching, and also that the diversity of careers from hospital to consultant level and from academic

see **TEACHING COURSES**, page 13



Dr. Freedman lectures on education.

## TEACHING COURSES

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career to nonacademic career is wide. For this reason, a teaching course on education in neurology covered the topics on how to establish a curriculum, as well as how to integrate neurologic knowledge and procedures into the national situation, politics and legislation. It is important to define new learning strategies and teaching methods, to eventually support or replace the traditional apprenticeship model of neurologic education. Also the classic concept of knowledge, skills and competence will need to include aspects of professionalism and attitude. Knowledge is acquired in an incremental, almost pyramidal way. Yet, individuals and institutions also will need to adapt to new developments, and this procedure of systemic approach to replace old content or procedures is termed unlearning.

One lecture by Dr. Freedman focused on the merging and growing possibilities of e-learning. He presented his own experience with video conferences worldwide and gave important clues to enlarge the scope of this project.

The local flavor of Latin American neurology was presented by Prof. Nitrini of



Dr. Nitrini speaks on education in Latin America.



Several speakers and participants gather for a photo opp.

Brazil, who outlined educational activities in Latin America. He discussed the rise of impact factors among publications from Latin America in the past years.

Within the topic of applied teaching and education, translation was discussed by Prof. Camfield of Canada. This term describes the often difficult transfer of young

patients from pediatric neurology into adult neurology. Translation also has been well



Prof. Raad Shakir outlines the role of the WFN in the Palatucci course.



A good turnout attends a day of programming.

described in other fields of pediatrics and demonstrates a clash of concepts between different concepts of patient care and involvement of careers.

Patient advocacy is an emerging concept, which empowers physicians to not only be involved in the provision of the best medical care, but also to advocate for

patients in the micro- and macro-environment. This concept in neurology is carried forward by the American Academy of Neurology (AAN) Palatucci courses in the United States, and the AAN and WFN implemented a joint AAN-WFN one-day course in Chile. Topics on advocacy, press work and presentations were given to a small, but soon to be powerful group. Also WFN President Raad Shakir presented his concept of worldwide engagement of the WFN in health matters.

Last but not least, some of the most important targets of education are patients and caregivers. Despite the importance of these groups, patient awareness days are, surprisingly, often not included in congresses. Since WCN 2015, the WFN implemented a patient day into its congresses. This year's topics included stroke, epilepsy, MS and dementia, and WFN Past President Vladimir Hachinski served as convener and engaged in the discussion. •

### Footnote

1. Oliver DJ, Borasio GD, Caraceni A, de Visser M, Grisold W, Lorenzl S, Veronese S, Voltz R. "A consensus review on the development of palliative care for patients with chronic and progressive neurological disease." *Eur J Neurol.* (Oct 1, 2015); doi: 10.1111/ene.12889).

## OLIVER SACKS

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will instruct future generations on how to practice medicine, how to write honestly and boldly, how to see diversity and differences as wondrous, how to live and how to die. Ben Jonson gambled well and said that Shakespeare was "not of an age, but for all time." Sacks was certainly not of our age — he loved fountain pens and paper, read books and wrote letters, disliked talking on the phone, and felt that the Internet, texting and emailing, for all they had added to our world, also subtracted from the richness of experience and education. Sacks was certainly not of our world. He was more at home in water than on land and preferred reading a dictionary to watching television, and watching a mineral of tantalum and tungsten to reading a novel.

Sacks' social network of friends, colleagues and correspondents had no clear limits, including from animal people like Jane Goodall and Katy Payne to Nobel laureates in chemistry, physics, and economics. Neuroscience and neurology were his home, and he was close to Stan Prusiner, Eric Kandel, Gerald Edelman, Francis Crick, D. Carleton Gajdusek and many others. With some, like Jun Wada, whom he had not seen in more than 50 years, he continued to correspond. He loved Wada's letters with their pressed maple and ginkgo leaves. He was friendly

with fern enthusiasts and lichen lovers, and with actors like Robin Williams, Dustin Hoffman, and Robert De Niro. He loved the herring mavers of Norway and Iceland and Houston Street's Russ and Daughters.

Neurology owes a debt to Oliver Sacks. He helped rudder the ship, which was heading on a course of abstraction, of pinpointing the exact location of a problem in the nervous system, oft-times at the expense of caring for patients.

As a medical student in the 1980s, I was attracted to neurology as a way to study the brain and behavior. Yet neurologists were the butt of endless jokes. For stroke, MS, ALS, brain tumors and neuropathy, we could tell you where the problem was and maybe even what caused it, but we couldn't help the patient. At best, it was said, we could only refer them to physical or speech therapy.

Sacks never accepted this paradigm. Many patients ask doctors what they would do if they were in the patient's situation. Oliver always observed from the patient's perspective. In doing so, he gave neurology two priceless gifts. First, he made caring for the whole patient an essential element of practice and showed that it was essential not only for reasons of human dignity but for its therapeutic effect as well. Whatever special insights his education and training brought, he respected the patient and family's views as equally priceless in understanding illness

and people and charting a course of caring.

While I was in medical school researching Tourette syndrome, a pediatric neurologist told me I must read *Awakenings* — that it was the most informative and insightful account of tics in the neurological literature. I was blown away. My doubts about what neurology could be dissolved. And my understanding of what a physician could be transformed.

One of the greatest blessings in my life has been my friendship with Oliver and what he has taught me. His medical lessons were many: to listen, to hear, to find the story and to see the life; to see yourself as a partner, an explorer and a healer; to doubt accepted answers whenever your mind will let you; to remember the curiosity and dreams that lead you to become a doctor; and to hold that gift for as long and tightly as you can. His life lessons were more profound. His life was infused with the joy and creativity and the simplicity and honesty of a child, and layered on to that was an intensity and depth of knowledge across a dizzying array of disciplines, and an intellectual passion that could charm and amaze in the same moment. Most of us speak and think in single notes; Oliver thought and wrote in chords.

Oliver loved Darwin, and their lives had many parallels. Darwin honed his craft, his theory and his reputation on an eight-year project in which he precisely dissected, classified and redefined our understanding

of barnacles while suffering a severe illness with GI symptoms and headaches. Oliver suffered migraine headaches and wrote his first book precisely describing, analyzing and organizing migraines. A few years later Darwin published his major work, *The Origin*, and Oliver had his, *Awakenings*. Darwin was a London boy whose first major trip was to sail around the South America on a boat; Oliver left London and flew across North America on a motorcycle. Darwin loved the comfort of his family and world at Down House; Oliver had his in NYC's west village. Darwin loved the Royal Botanical Gardens at Kew; Oliver, the New York Botanical Garden in the Bronx. Darwin's mind was unparalleled in churning countless facts into general theories; Oliver's mind churned science and experience into gorgeous tapestries of humanity.

We must celebrate this man whose playful heart, sweet smile, poetic pen and magical mind will remain a bright star in the neurological sky.

Oliver connected to our world at so many levels, and connected to many other worlds that escape our notice. He heard chords while we barely heard notes, and he let us listen through his ears. He was deeply loved and will be missed terribly. •

Orrin Devinsky, MD, is a professor of neurology, neurosurgery and psychiatry at the New York University School of Medicine and director of the New York University Comprehensive Epilepsy Center.

# 57th Annual Meeting of the Japanese Society of Neurology

Pre-Announcement

## Toward Treatable Neurology



President

**Ryuji Kaji**

Professor, Department of Neurology,  
Institute of Biomedical Sciences, Tokushima University Graduate School

Date

**May 18** (wed) to **21** (sat), **2016**

Venue

**Kobe Convention Center**

Kobe International Conference Center / Kobe International Exhibition Hall

**Kobe Portopia Hotel**

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