



# WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

## PRESIDENT'S COLUMN

### Major Activities of the WFN

BY WOLFGANG GRISOLD

Welcome to this issue of World Neurology. We are glad to have several informative articles again. I wish to express my thanks to all concerned, including Steven Lewis and Walter Struhal, the editors of World Neurology. They make World Neurology successful and provide a valuable source of information on the WFN and global neurology.



WOLFGANG  
GRISOLD

#### WFN Major Events

##### Adoption of the Intersectoral Global Action Plan on Epilepsy and other Neurological Disorders

The first event in late May 2022 was the acceptance of the international global action plan on epilepsy and

other neurological disorders 2022- 2031 (IGAP) by WHO Member States at the 75th World Health Assembly (WHA) in Geneva. I was personally present for the entire week in Geneva and made a statement in support of the IGAP on behalf of WFN as a non-State actor in official relations with WHO. In addition to the fantastic news of the acceptance of IGAP, I was privileged to attend the WHA and witness the re-election of Secretary General Dr. Tedros Adhanom Ghebreyesus. I had time to attend two side events, one held by the Alzheimer's Association and one held by One Neurology with the European Federation of Neurologic Associations (EFNA), which gave valuable information on some neurology topics.



Geneva conference

I also want to make a note of a [joint webinar](#) done with the International League Against Epilepsy (ILAE) on the occasion of IGAP being adopted that occurred on May 28. There is more detail on IGAP below and on the [WFN website](#).

The next issue of the *Journal of the Neurological Sciences* (JNS) will publish an article written by the WHO, titled "Brain Health as a Global Priority," which explains the brain health conceptualization

from the WHO for the IGAP and will be accompanied by an editorial by the WFN trustees.

#### Economic and Social Council (ECOSOC)

The second important news event is WFN's application for the UN—Economic and Social Council (ECOSOC). The Committee on Non-Governmental

see [PRESIDENT'S COLUMN page 10](#)

## WHO World Health Assembly Adopts the Intersectoral Global Action Plan on Epilepsy and Other Neurological Disorders 2022–2031

BY KIMBERLY KARLSHOEJ, WFN STRATEGY AND PROGRAM DIRECTOR, AND WOLFGANG GRISOLD

The Intersectoral Global Action Plan on Epilepsy and Other Neurological Disorders 2022–2031 (IGAP) was adopted at the WHO's World Health Assembly on May 27. This action plan will guide numerous countries in developing their national policies and eventually offer up a framework for best practices that will ensure better access to treatment and prioritize the promotion of brain health across the life course. It seeks to support the recovery, well-being, and participation of people living with neurological conditions

while reducing associated deaths and disability due to these conditions, promoting human rights, and addressing the stigma and discrimination that people with neurological disorders often face.

The adoption of IGAP results from years of work and consultations with the WFN, other members of the Global Neurological Alliance, the WHO Secretariat and the Member States. Especially the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE), supported strongly by the



KIMBERLY  
KARLSHOEJ

WFN and several Member States, were able to convince the November 2020 World Health Assembly that epilepsy was a public health emergency and that an action plan was needed to address it.

Nervous system disorders and diseases are the leading cause of disability and the second-leading cause of death worldwide. WHO emphasizes that neurological disorders affect one out of three people. Neurological disorders significantly decrease quality of life while increasing costs for governments, communities,

see [IGAP page 3](#)

## INSIDE

ENVIRONMENT, CLIMATE, AND NEUROLOGICAL DISEASES

PAGE 2

TODD, FARADAY, AND THE ELECTRICAL ACTIVITY OF THE BRAIN

PAGE 4

INTERNATIONAL HEADACHE SOCIETY GLOBAL PATIENT ADVOCACY COALITION

PAGE 7

COVID-19 AND NEUROLOGY UPDATE

PAGE 8

PUBLIC EDUCATION ACTIVITIES IN INDIA

PAGE 9



WORLD FEDERATION OF NEUROLOGY

**Editors-in-Chief**  
Steven L. Lewis (Editor)  
Walter Struhal (Co-editor)

**WFN London Office**  
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 3 542 1301  
[info@wfneurology.org](mailto:info@wfneurology.org)

**WFN OFFICERS**  
**President** Wolfgang Grisold (Austria)  
**First Vice President** Guy Rouleau (Canada)  
**Acting Secretary General** Steven Lewis (USA)  
**Treasurer** Richard Stark (Australia)

**ELECTED TRUSTEES**  
Morris Freedman (Canada)  
Alla Guekht (Russia)  
Steven L. Lewis (USA)

**CO-OPTED TRUSTEE**  
Riadh Gouider (Tunisia)  
Marco Medina (Honduras)  
Chandrashekhar Meshram (India)

**REGIONAL DIRECTORS**  
Maged Abdel Naseer (Pan-Arab)  
Orly Avitzur (North America)  
Claudio Bassetti (Europe)  
Marco Tullio Medina (Latin America)  
Beomseok Jeon (Asian-Oceania)  
Foad Abd-Allah (Pan-Africa)

**EDITOR OF THE JOURNAL OF THE NEUROLOGICAL SCIENCES**  
John England (USA)



**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.

**Disclaimer:** Articles in *World Neurology* represent the authors' personal views and do not necessarily represent the opinions of the editors, trustees, or leadership of the World Federation of Neurology or the publisher. The World Federation of Neurology and Ascend Media will not assume responsibility for damages, loss, or claims of any kind arising from or related to the information contained in this publication, including any claims related to products, drugs, or services.

**Editorial Correspondence:** Send editorial correspondence to *World Neurology*, Dr. Lewis at [Steven.L.Lewis@lvhn.org](mailto:Steven.L.Lewis@lvhn.org) or Dr. Struhal at [walter.struhal@akh.linz.at](mailto:walter.struhal@akh.linz.at).

*World Neurology*, ISSN: 0899-9465, is published bimonthly by Ascend Media, 401 SW Ward Rd., Suite 210, Lee's Summit, MO 64083  
Phone +1-913-344-1300 Fax: +1-913-344-1497

©2022 World Federation of Neurology



**PUBLISHING PARTNER**  
Ascend Media

**President and CEO**  
Blair Johnson

**Vice President of Content**  
Rhonda Wickham

**Director of eMedia**  
Jena Brooks

**Graphic Design**  
Tim Nord

**Senior Project Director**  
Amanda Nevala

FROM THE EDITORS

BY STEVEN L. LEWIS, MD, EDITOR,  
AND WALTER STRUHAL, MD, CO-EDITOR

We'd like to welcome all readers to the May/June 2022 issue of *World Neurology*.

The issue begins with the President's Column, where WFN President Dr. Wolfgang Grisold updates on many of the current and evolving global activities, major events, and projects that the WFN is involved in. Kimberly Karlshoej, WFN strategy and program director, updates us on the Intersectorial Global Action Plan on Epilepsy and Other Neurologic Disorders (IGAP) 2022-2031 and its recent adoption by the World Health Assembly.

Dr. Mohammad Wasay and Dr. Safa Younis report on the recent webinar by the Environmental Neurology Specialty Group of the WFN on Environment, Climate, and Neurological Diseases.

In this issue's History Column,



STEVEN L. LEWIS, MD



WALTER STRUHAL, MD

Dr. Edward Reynolds discusses the early and pioneering concepts of the electrical activity of the brain and the roles of Robert Todd and Michael Faraday.

This issue also features a COVID-19 and neurology update, edited by Dr. Chandrashekhar Meshram, and written by experts from the U.S. National Institutes of Health, Dr. B. Jeanne Billioux and Dr. Avindra Nath. Dr. Chandrashekhar Meshram, U Meenakshisundaram, Gagandeep Singh, and Nirmal Surya also report on the many recent public

awareness activities of the Indian Academy of Neurology.

Also in this issue is an article about the International Headache Society recognizing a corporation for its work in migraine education and awareness among its employees.

This issue includes the important announcement naming the candidates for WFN Secretary General and Elected Trustee, and the upcoming election to be held in October prior to the Annual General Meeting of the WFN Council of Delegates.

Finally, we look forward to World Brain Day 2022 (July 22) devoted to Brain Health for All, and we will report on the many activities surrounding World Brain Day occurring throughout the world in upcoming issues of *World Neurology*.

We thank all readers for their interest in *World Neurology* and invite ideas for contributions to be sent to us at the email addresses listed in the issue. •

Environment, Climate, and Neurological Diseases Webinar by the Environmental Neurology Specialty Group (ENSG).

BY SAFA YOUNIS AND MOHAMMAD WASAY

In honor of World Environment Day celebrated annually on June 5, the World Federation of Neurology (WFN) hosted a webinar to raise awareness and explore the relationship between environmental factors and the brain. This webinar unpacked variables such as climate change and chemical pollutants as risk factors for neurological disorders.

Esteemed neurologists from around the world spoke at this event, including Dr. Mohammad Wasay, who moderated the webinar, Dr. Wolfgang Grisold (WFN president), Dr. Gustavo Roman (ENSG president), Dr. Jacques Reis, Dr. Anna Ranta, Dr. Peter Spencer, Dr. Philip Landrigan, Dr. Serefenu Ozturk, Dr. Augustina Charway Felli, Dr. Hidehiro Mizusawa, Dr. Teresa Corona, and Dr. Alla Guekht.

Of the many themes discussed, Dr. Reis elaborated on environmental challenges that society faces and the neurologists' role as the climate changes. He specifically examined the correlation between climate change and an increase in neurological diseases. He said that according to the *World Economic Forum Davos: The Global Risks Report 2022*, climate action failure, extreme weather events, and biodiversity losses will likely be the most concerning global risks

over the next decade. Further, Dr. Anna Ranta conferred the benefits of green spaces on vascular brain health. There is evidence that exposure to green spaces has a positive impact on stroke prevention, severity, and mortality. Dr. Peter Spencer discussed the climate-relevant neurotoxic botanicals linked with human motor-neuron diseases such as *Lathyrus sativus*, *Cycas micronesica*, *Manihot esculenta*, and *Gyromitra esculenta*. He demonstrated that these botanicals can be linked to certain neurological diseases such as Lathyrism, Cassavism, and Amyotrophic Lateral Sclerosis-Parkinsonism-Dementia Complex.

Dr. Philip Landrigan spoke about climate change, chemical pollution and the developing human brain. There is growing evidence that toxic chemicals can cause neurodevelopmental disorders in children, since they are more sensitive to chemicals in the environment compared to adults. Dr. Landrigan also expressed that there may be countless unrecognized chemicals causing neurotoxicity in children. He stated a great example of how lead was removed from gasoline, which was known to cause neurotoxicity. The benefits for this action included a 2- to 5-point gain in population mean IQ and a \$200 billion annual economic benefit to the U.S. through increased economic productivity of more intelligent



SAFA YOUNIS



MOHAMMAD WASAY

and creative children, simply by removing one neurotoxic chemical from the environment. Dr. Gustavo Roman shared lessons learned from COVID-19 from an environmental point of view.

Dr. Wolfgang Grisold concluded the program by emphasizing the importance of this discussion in our everyday lives. This enlightening webinar encourages future research that assesses the correlation between environmental factors and neurological conditions. Dr. Serefenu Ozturk (ENSG vice president) emphasized policy changes to improve air pollution and brain health. Dr. Augustina Charway (African Academy of Neurology president) discussed brain health challenges in Africa. •

Mohammad Wasay is Alicharan Endowed Professor of Neurology, Department of Medicine, Aga Khan University, Karachi, and Secretary General, Environmental Neurology Specialty group, WFN.



# IGAP Summarized

The Intersectoral Global Action Plan on Epilepsy and Other Neurological Disorders 2022–2031 (IGAP) aims to improve access to care and treatment for people living with neurological disorders while preventing new cases and promoting brain health and development across the life course. It seeks to support the recovery, well-being, and participation of people living with neurological conditions while reducing associated mortality, morbidity, and disability, promoting human rights, and addressing stigma and discrimination through interdisciplinary and intersectoral approaches.

## Vision

The vision of the intersectoral global action plan on epilepsy and other neurological disorders 2022–2031 is a world in which:

- brain health is valued, promoted, and protected across the life course
- neurological disorders are prevented, diagnosed, and treated, and premature mortality and morbidity are avoided
- people affected by neurological disorders and their carers attain the highest possible level of health, with equal rights, opportunities, respect, and autonomy.

## Goal

The goal of the intersectoral global action plan on epilepsy and other neurological disorders 2022–2031 is to reduce the stigma, impact, and burden of neurological disorders, including their associated mortality, morbidity, and disability, and to improve the quality of life of people with neurological disorders, their carers, and families.

The intersectoral global action plan on epilepsy and other neurological disorders 2022–2031 has the following strategic objectives:

- raise policy prioritization and strengthen governance
- provide effective, timely and responsive diagnosis, treatment, and care
- implement strategies for promotion and prevention
- foster research and innovation and strengthen information systems
- strengthen the public health approach to epilepsy.

### Strategic Objective 1 Raise policy prioritization and strengthen governance

#### Global target 1.1

75% of countries will have adapted or updated existing national policies,

strategies, plans, or frameworks to include neurological disorders by 2031.

#### Global target 1.2

100% of countries will have at least one functioning awareness campaign or advocacy program for neurological disorders by 2031.

### Strategic Objective 2 Provide effective, timely, and responsive diagnosis, treatment, and care

#### Global target 2.1

75% of countries will have included neurological disorders in the UHC benefits package by 2031.

#### Global target 2.2

80% of countries will provide the essential medicines and basic technologies required to manage neurological disorders in primary care by 2031.

### Strategic Objective 3 Implement strategies for promotion and prevention

#### Global target 3.1

80% of countries will have at least one functioning intersectoral program for brain health promotion and the prevention of neurological disorders across the life course by 2031.

#### Global target 3.2

The global targets relevant for prevention

of neurological disorders are achieved, as defined in:

- the NCD-GAP
- defeating meningitis by 2030: a global road map
- every newborn: an action plan to end preventable deaths.

### Strategic Objective 4 Foster research and innovation and strengthen information systems

#### Global target 4.1

80% of countries routinely collect and report on a core set of indicators for neurological disorders through their national health data and information systems at least every three years by 2031.

#### Global target 4.2

The output of global research on neurological disorders doubles by 2031.

### Strategic Objective 5 Strengthen the public health approach to epilepsy

Strengthen the public health approach to epilepsy

#### Global target 5.1

By 2031, countries will have increased service coverage for epilepsy by 50% from the current coverage in 2021.

#### Global target 5.2

80% of countries will have developed or updated their legislation with a view to promoting and protecting the human rights of people with epilepsy by 2031. •

## IGAP

continued from page 1

families, and individuals and cause sustained losses of productivity for economies. That's why the global action plan is so vital. It sets strategic goals and reachable targets that will encourage countries to prioritize neurological diseases in their public health agendas.

The WFN is fully committed to the implementation of IGAP. Work relating to IGAP is ongoing, for example in improving neurology specialty, subspecialty, and health care worker training through WFN Training Centers, Department Visits, E-Learning Days, and the development of a Core Curriculum in Neurology. The Neurological Needs Registry will provide relevant comparative information to both the WHO, Member States, and WFN Member Societies. The WFN Trustees have nascent plans to implement advocacy training so that the WFN can help build the capacity of its Member Societies to reach, advise, and lobby their governments so that neurology is included in relevant ways in national policies. WFN will continue its public awareness campaigns such as World Brain Day, which has the theme of "Brain Health for All" this year. Finally, the WFN will continue to provide expert technical assistance to WHO. Over the next 10 years of IGAP, the WFN expects that the actions and policies put in place will contribute to saving lives and significantly reducing disability from neurological disorders worldwide. •

Kimberly Karlshoej is strategy and program director for the WFN.

## INTERSECTORAL GLOBAL ACTION PLAN ON EPILEPSY AND OTHER NEUROLOGICAL DISORDERS (IGAP)

### Strategic objectives and global targets



WFN diagram illustrating the strategic objectives of IGAP.



## HISTORY

## Todd, Faraday, and the Electrical Activity of the Brain

BY EDWARD REYNOLDS

Electrical concepts of brain activity became widely established in neurology and psychiatry in the 1930s following the discovery of the human electro-encephalograph by Hans Berger (1873-1941) in the 1920s. However, such concepts were first formulated and confirmed almost a century earlier in the 1840s by Robert Bentley Todd (1809-1860), influenced by his contemporary in London, Michael Faraday (1791-1867), who at that time was laying the foundations of our modern understanding of the interchangeable polar forces of electricity and magnetism.

**Robert Bentley Todd**

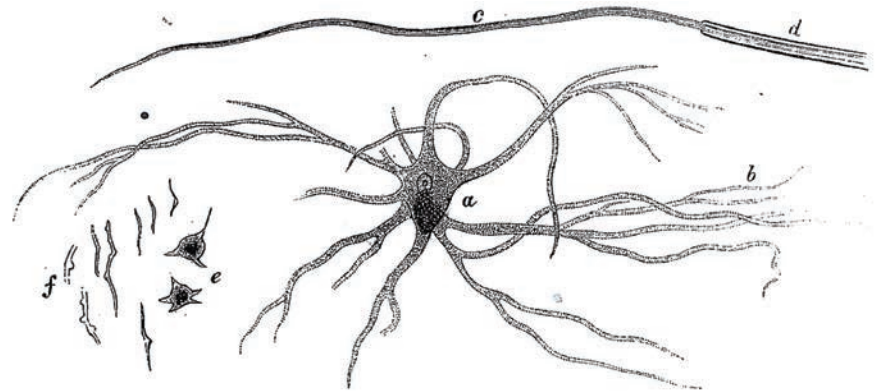
Todd was born in Dublin, the second son of a large and distinguished Anglo-Irish family, whose father, Charles Hawkes Todd, was professor of anatomy and surgery at the Royal College of Surgeons in Ireland of which he was also president in 1821. He trained in Medicine at Trinity College and the Richmond Hospital, where he was influenced by Robert Graves (1796-1853). He qualified at his father's college in 1831 and immediately proceeded to England where in 1833 he was awarded a BM by Oxford University. In 1836, at the remarkable age of 27 years, he was appointed to the chair of physiology and morbid anatomy at King's College in London. Todd was the prime mover in founding King's College Hospital in 1840 where he became its most eminent physician. He was a gifted teacher and administrator who transformed the fortunes of the Medical School of which he became the first dean in 1842. His lectures on physiology were the first of their kind in the U.K. and prompted other medical schools to emulate. By 1838, he was already elected a Fellow of the Royal College of Physicians and the Royal Society in London.

As a scientific physician, Todd made several contributions to the understanding and treatment of

infectious, gastro-intestinal, and rheumatic diseases, but his main interest was always the nervous system. His many outstanding observations in neuroanatomy, neurohistology, neurophysiology, neuropathology, and clinical neurology are described in several major works. He was the first to identify the functions of the posterior columns of the spinal cord and to separate spinal ataxia from spinal paraplegia. Gowers credits Todd with the first exact account of locomotor ataxia or tabes dorsalis and "if any name is attached to it, that of Todd alone can be right." His clinical lectures on paralysis, based on the clinical and pathological study of 83 cases, are a milestone in the history of stroke. They include the first description of transient post-ictal paralysis, which a generation later John Hughlings-Jackson (1835-1911) referred to as "Todd's Paralysis" and for which Todd is perhaps best remembered today, although it is a small part of his contribution to neurology. He also distinguished the "irritating" (epileptic) from the "paralyzing" phenomena of cerebral lesions, which are now associated with the later similar concepts of Jackson who used the words "discharging" and "destroying."

**Michael Faraday**

Michael Faraday was born in London into a poor blacksmith's family. He had little education but, as an apprentice bookbinder, he devoured the scientific books he was binding. Through his own initiative and good fortune, he was appointed in 1813 as a laboratory technician to Sir Humphrey Davy (1778-1829), professor of chemistry and director at the Royal Institution in Albemarle St., London, close to King's College in the Strand. Among Davy's important achievements, he discovered sodium, potassium, chlorine, calcium, and magnesium, using the Voltaic Pile. Faraday remained at the Royal Institution for more than 50 years, rising to surpass



A central nervous system "vesicle" and related "fibers" (neurone in later terminology). From Todd R.B. and Bowman W. *The physiological anatomy and physiology of man – Volume 1*, Parker, London, 1845

Davy and to become one of the greatest experimental philosophers of all time. The practical consequences of his discoveries have profoundly influenced the nature of civilized life.

Faraday studied all forms of electricity: voltaic, common, magneto, thermo, and so-called "animal" electricity, and considered that the various types were fundamentally the same. He examined the inter-conversion of energies, not only electricity and magnetism, but also light, heat, and gravity, which was the basis for the later law of the conservation of energy. His meticulous diaries record that on Oct. 22, 1838, Todd was present during his experiments on the "animal" electricity generated by the electric eel (*Gymnotus*). Also present on that occasion were two of Todd's distinguished colleagues from King's College: Prof. John Frederick Daniell (1790-1845), who was the first professor of chemistry (1831-1845) and invented the first constant cell battery (the Daniell battery) and Prof. Charles Wheatstone (1802-1875), who was the first professor of experimental philosophy (1834-1875) and developed the first electric telegraph. Both were good friends of Faraday, sharing a common interest in electricity, and no doubt they introduced him to Todd, their new, young technical scientific colleague.

**The Electrical Basis of Nerve Conduction and Brain Activity**

Todd applied the electrical concepts of Faraday to nervous conduction and to brain activity, especially epilepsy. He wrote: "Adopting the language of the illustrious Faraday which expressed with clearness and precision the fundamental phenomena of the electric force, we may call the nervous power a polar force, generated in the centres and propagated by the rapid polarization of the neighboring particles in various directions."

With his junior colleague William Bowman (1816-1872), Todd was a pioneering microscopist and neurohistologist. He was the first in

the U.K. to apply Schwann's (1839) cell theory to the nervous system. He recognized that the "vesicles" he observed corresponded to Schwann's cell bodies. Furthermore, the vesicles had one or several nerve fibers (later called axons) connected to them and that every nerve fiber was connected to a vesicle which was the point of departure for one or many fibers. He brilliantly foresaw that each nerve vesicle and its associated fibers, i.e. neurone in later terminology, was a distinct apparatus for the generation and propagation of "nervous polarity." Todd was unquestionably the first to develop the concept of nervous polarity to explain nerve cell conduction, facilitated by the insulating properties of Schwann's white matter (myelin). In the process, he introduced the concept of "afferent" and "efferent" into neuroscience to explain the direction of conduction. These were the foundation stones of what decades later became known as the "neurone doctrine."

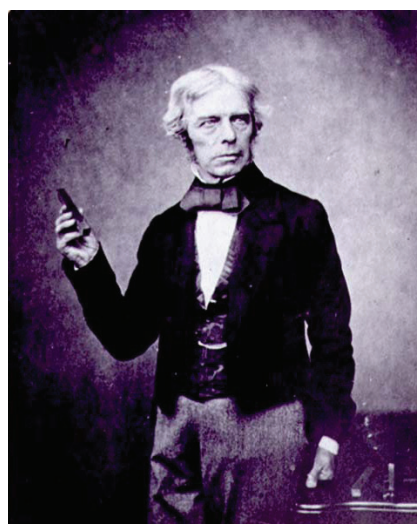
**The Electrical Basis of Epilepsy**

In his 1849 Lumleian Lectures to the Royal College of Physicians, Todd discarded current vascular or inflammatory theories of epilepsy and developed a radically new electrical theory based on his new understanding of nervous polarity, influenced by Faraday's concepts of the interchangeable polar forces of electricity and magnetism. He had learned from Faraday how a rise in electrical tension could, at a certain threshold, result in a sudden change in polar state, like the spark from a battery or lightning. Todd conceived of epilepsy as "periodical evolutions of the nervous force comparable to the electrical phenomena described by Faraday under the name of 'disruptive discharge'." In convulsions, he envisaged the polar tension in the grey vesicular matter of the hemispheres and mesocephale rising to the highest degree and a rapid discharge taking place "exciting the other parts of the brain and spinal cord with all the violence of the discharge from a highly charged Leyden Jar."

see HISTORY page 5



Robert Bentley Todd (1809-1860)



Michael Faraday (1791-1867)

## HISTORY

continued from page 4

Todd investigated and confirmed his theory in rabbits utilizing galvanic stimulation with a magneto-electric machine designed by Faraday. Tonic-clonic seizures were elicited by stimulation of the mesocephale and corpora quadrigemina. Stimulation of the spinal cord and medulla elicited tetanic muscular phenomena. The loss of consciousness in epilepsy he attributed to the involvement of the highest hemispheric vesicular grey matter. It was not until 20 years later that Fritsch and Hitzig discovered the motor cortex in electrical stimulation experiments in dogs, but Todd was aware that superficial tuberculous or syphilitic lesions of the human cortex could result in unilateral motor convulsions in the limbs on the opposite side of the body. He stated: "Hence, we must not deny to

these hemispheric lobes a certain power of exciting motion either directly or indirectly through their influence on other ganglia of the brain."

### Subsequent Developments

Electrical concepts of brain activity were not widely accepted until the discovery of the human EEG by Berger in the 1920s although further hints can be traced to the cortical stimulation experiments of Gustav Fritsch (1838-1927) and Eduard Hitzig (1839-1907) and of David Ferrier (1843-1928), and also the evoked potential studies of Richard Caton (1842-1926), all in the 1870s. Epilepsy continued to be widely viewed as a disorder of the cerebral circulation until the 1930s, when EEG studies confirmed the concept of electrical discharges in seizures of different types.

By then, Todd's studies, concepts, and priority had been forgotten. Some retrospectively gave credit to Jackson

for his concept of "discharges of grey matter," but Jackson never acknowledged Todd's priority even in his own Lumsden Lectures on the same topic of epilepsy a generation later in 1890. The philosophical Jackson admitted he had no knowledge of physics, and he tended to rely on Ferrier on scientific matters. It is unlikely that the neurophysiologist Ferrier was unaware of Todd's priority as he worked at the same King's College Hospital and regularly passed Todd's statue in the lobby of the hospital.

In 1906, Santiago Ramón y Cajal (1852-1934) and Camillo Golgi (1843-1926) received the Nobel prize for their contribution to the "neurone doctrine," the foundations of which were already laid by Todd but not acknowledged. In 1963, Alan Hodgkin (1914-1998) and Andrew Fielding Huxley (1917-2012) received the Nobel prize for identifying the ionic basis of Todd's nervous polarity. Interestingly, the theory involved the same ions that Faraday's mentor, Sir Humphrey Davy, had discovered, i.e. sodium, potassium, chlorine, calcium, and magnesium. The table illustrates the progression over a century and a half of our knowledge of brain electricity or nervous polarity from Davy's discovery of the appropriate ions through the work of his pupil Faraday, who so profoundly influenced his clinical and scientific contemporary in London, Todd, down to the discovery of the ionic basis of neurotransmission by Hodgkin and Huxley.

### Conclusion

Todd died in 1860, the same year as the foundation of the National Hospital for the Paralyzed and Epileptic in Queen Square, a short walk from the first

King's College Hospital founded by Todd. His colleagues were so impressed with his many achievements that they commissioned a statue which stands today outside the third King's College Hospital on Denmark Hill, South London. This was in recognition of his contribution to King's College, to the hospital, to clinical and scientific medicine, including paralysis, and to medical and nursing education. What is not mentioned and was little understood at the time was his contribution to neuroscience, especially the electrical basis of nerve conduction and brain activity, and its application to neurology, especially epilepsy, influenced by his contact with and understanding of the scientific achievements of Faraday. Todd was so far ahead of his time that many of his neuroscientific achievements were overlooked, soon forgotten and credited to others, but now deserve greater recognition by historians of neuroscience and neurology. •

Edward H. Reynolds MD, FRCP, FRCPsych, works in the Department of Clinical Neurosciences at King's College, London, U.K.

### References

- Binder/ DK, Rajneesh/ KF, Lee/ DJ, Reynolds E.H, Robert Bentley Todd's contribution to cell theory and the neuron doctrine. *Journal of the History of the Neurosciences* 2011;20:123-134
- Reynolds E.H. Todd, Faraday and the electrical basis of brain activity. *Lancet Neurology* 2004;3: 557-563
- Reynolds E.H. Jackson, Todd and the concept of 'discharge' in epilepsy. *Epilepsia* 2007;48:2016-2022
- Reynolds E.H. Robert Bentley Todd. In: *Pioneers of Irish Neuroscience: a history of brain science in Ireland*. Eds: Kelly A, Zarka Z, Roche R. Letterter Publishing, Cork, 2022, pp47-51

### MILESTONES IN THE HISTORY OF BRAIN ELECTRICAL ACTIVITY

DAVY	(1800's)	SODIUM, POTASSIUM, CHLORINE, CALCIUM, MAGNESIUM.
FARADAY	(1830's)	ELECTROMAGNETISM, ANIMAL ELECTRICITY.
TODD	(1840's)	BRAIN ELECTRICITY, NERVOUS POLARITY, DISCHARGES.
FRITSCH, HITZIG JACKSON, FERRIER	(1870's)	CORTICAL LOCALISATION AND EXCITABILITY.
CATON	(1870's)	ANIMAL CORTICAL ELECTRICAL POTENTIALS.
GOLGI, CAJAL	(1906 Nobel Prize)	NEURON DOCTRINE.
BERGER	(1920's)	HUMAN ELECTROENCEPHALOGRAM.
HODGKIN, HUXLEY	(1963 Nobel Prize)	IONIC BASIS OF NEUROTRANSMISSION.

## Election Announcement

In March, the Nominating Committee of the WFN invited nominations for the positions of:

### Secretary General [4-year term]

To take office from Jan. 1, 2023  
Position vacated by Prof. Dr. Wolfgang Grisold

### Candidates (in alphabetical order)

- Marianne de Visser
- Steven Lewis
- Tissa Wijeratne

### One Elected Trustee [3-year term]

To take office immediately following the council of delegates meeting.  
Position vacated by Dr. Steven Lewis upon the end of his second term of office

### Candidates (in alphabetical order)

- Minerva López Ruiz
- Chandrashekhar Meshram
- Bo Norrving
- Mohammad Wasay

As in the previous two elections—2020 and 2021—voting will take place by remote online ballot. This method of voting enables all member societies to vote in the elections, regardless of whether or not they are able to attend the Council of Delegates meeting, but also reduces the impact that adverse conditions, such as differences in time zone or difficulties caused by COVID restricted travel, may have to sound decision-making when voting.

**Voting will take place between Oct. 3-16, 2022, before the WFN AGM Council of Delegates meeting.**

Further information on how to vote, including an instructional video, will be sent out to WFN member societies on Sept. 5 together with online registration to attend the AGM.

**The results of the voting will be announced during the Council of Delegates meeting. •**



## Announcing the 32nd International Congress of Clinical Neurophysiology

The 32nd ICCN 2022 in Geneva, Switzerland, encompasses 38 education courses and 66 scientific sessions, with 286 speakers. The "Eighth International Conference on Non-Invasive Brain Stimulation" will take place as part of ICCN, consisting of 38 Brain Stim talks (both courses and sessions as a continuous track).

Course and symposium tracks are organized into these topics:

- EEG and MEG
- Brain Stimulation
- Peripheral Neurophysiology

- Brainstem Neurophysiology
  - Pediatric Neurophysiology
  - Intraoperative Neuromonitoring
  - Intensive Care Neurophysiology
- Plus, ICCN will host over 300 posters, plus an exhibit hall of related products and services.

Late-breaking poster abstracts can be submitted until June 30.

Here is the link to the preliminary program: <https://ifcn.site-ym.com/mpage/ProgrammeOverview>.

For more information, visit: <http://www.iccn-congress.org>. See you in Geneva! •



World Brain Day 2022  
is dedicated to

# Brain Health for All



World Brain Day 2022 is dedicated to Brain Health.  
Join us July 22 as we spark a universal effort that shares  
crucial information needed to reduce the burden of brain  
diseases. Together, we can achieve Brain Health for All.



**WORLD  
BRAIN DAY**  
Brain Health for All

Learn more at [wfneurology.org/world-brain-day-2022](https://wfneurology.org/world-brain-day-2022)



# International Headache Society Global Patient Advocacy Coalition (IHS-GPAC)

ISH-GPAC recognizes Fujitsu as a world leader in migraine awareness, education, and employee support in the workplace

FUMIHIKO SAKAI, DAVID W. DODICK

The impact of migraine on people's professional lives, work productivity, and interpersonal relationships at work eventually affects everyone, has a significant detrimental effect on people with migraine, and exacts a huge cost in terms of lost productivity. People with migraine want to work, so they do their best to work despite intense pain and debilitating neurological symptoms. Most of migraine-related productivity loss<sup>1</sup> is due to presenteeism. People are less than half effective during a migraine attack due to the pain, neurological symptoms, attack unpredictability, other diseases associated with migraine, emotional impact, under-diagnosis and under-management, and stigma. Migraine-related productivity loss may negatively affect people's career choice, job security, opportunities for promotion, financial status, work relationships, mood, and confidence.

The International Headache Society Global Patient Advocacy Coalition (IHS-GPAC) was created to "understand and promote the global, regional, and local interests of people with recurrent headache disorders"<sup>2</sup>. Given the significant impact of migraine during people's peak productive years, one of the priorities of the IHS-GPAC was to create a migraine at work fitness program to enhance awareness and disease education, empower employees to seek treatment, reduce stigma, and ensure access to support and care<sup>3</sup>.

The IHS-GPAC has collaborated with Fujitsu, one of the largest information technologies (IT) companies in Japan. This project has an emphasis on migraine awareness, education, and employee support. Fujitsu and the IHS-GPAC

developed and implemented training programs for employees globally in the workplace to promote awareness and treatment of headache disorders, as well as prevention programs for employees who have headache disorders. Fujitsu's efforts were recognized by the IHS-GPAC, and a certificate of excellence was awarded on March 2, 2022, as a model case of corporate measures to support employees living with headache disorders<sup>4</sup>.

## IHS-GPAC Awarded Fujitsu Project

The CEO of Fujitsu reported in his bulletin on the company's Headache Project:

*"Since 2018, in collaboration with the World Health Organization, the International Headache Society, and the Japanese Headache Society, Fujitsu has conducted employee surveys on the degree to which chronic headaches interfere with work in the workplace. As a result, we learned that 85% of employees were aware of having headaches, of which 84% had never been treated. The knowledge prompted us to start the Fujitsu Headache Project in 2019. To date, 73,000 employees in Japan have completed an e-Learning module that is designed to improve understanding of headaches, the impact they have on our lives, and how to deal with them. In addition, in cooperation with Fujitsu Clinic, we started a headache counseling program run by specialists for employees and their families. In recognition of these initiatives, on March 2 the Global Patient Advocacy Coalition of the International Headache Society named Fujitsu as "a world leader" in migraine workplace awareness, education, and employee support programs. Fujitsu is the first corporation in the world to be designated as a leader in this way.*

*What is most important in dealing with headaches is raising everyone's awareness of*

*What is most important in dealing with headaches is raising everyone's awareness of headaches and getting them to think about headaches as an issue that may affect them. For people who suffer from headaches, it is important for them to learn and put into practice appropriate ways of dealing with headaches, and for people who do not suffer from headaches, it is important that they learn the true facts about headaches and support their colleagues who suffer from them.*



On behalf of Prof David Dodick, chair of IHS-GPAC (right, on the screen), Prof. Fumihiko Sakai (third from the left) in Japan presented the plaque "International Headache Society Global Patient Advocacy Coalition recognizes Fujitsu Limited as a World Leader Migraine Workplace Awareness, Education, and Employer Support Program," 2019-2022. CEO of Fujitsu; Takahito Tokita (second from the left). Dr. Hitoshi Miyake (head of Health Promotion Unit-left) and Dr. Hisaka Igarashi-right). Also speaking at this event were Prof. Cristina Tassorelli, president of the International Headache Society and Prof. Wolfgang Grisold, president of the World Federation of Neurology.

*headaches and getting them to think about headaches as an issue that may affect them. For people who suffer from headaches, it is important for them to learn and put into practice appropriate ways of dealing with headaches, and for people who do not suffer from headaches, it is important that they learn the true facts about headaches and support their colleagues who suffer from them.*

*In Japan, already over 90% of employees have taken part in Fujitsu's headache education e-Learning program, and we also want to promote a better understanding of headaches to our employees outside of Japan, as well."*

One of the typical examples who received benefit from the project was a woman with chronic migraine whose work productivity was negatively affected by migraine, yet she was patient and diligent. Since she has been receiving migraine treatment through the headache clinic, the negative impact of migraine on her functioning and quality of life decreased to 10% to 20% of the pretreatment. Her senior colleagues congratulated her success in regaining healthy work.

The leadership demonstrated by Fujitsu serves as a model to emulate and will guide future IHS-GPAC activities. We will continue our effort to implement the migraine fitness at work program in other

companies throughout Japan and around the world. •

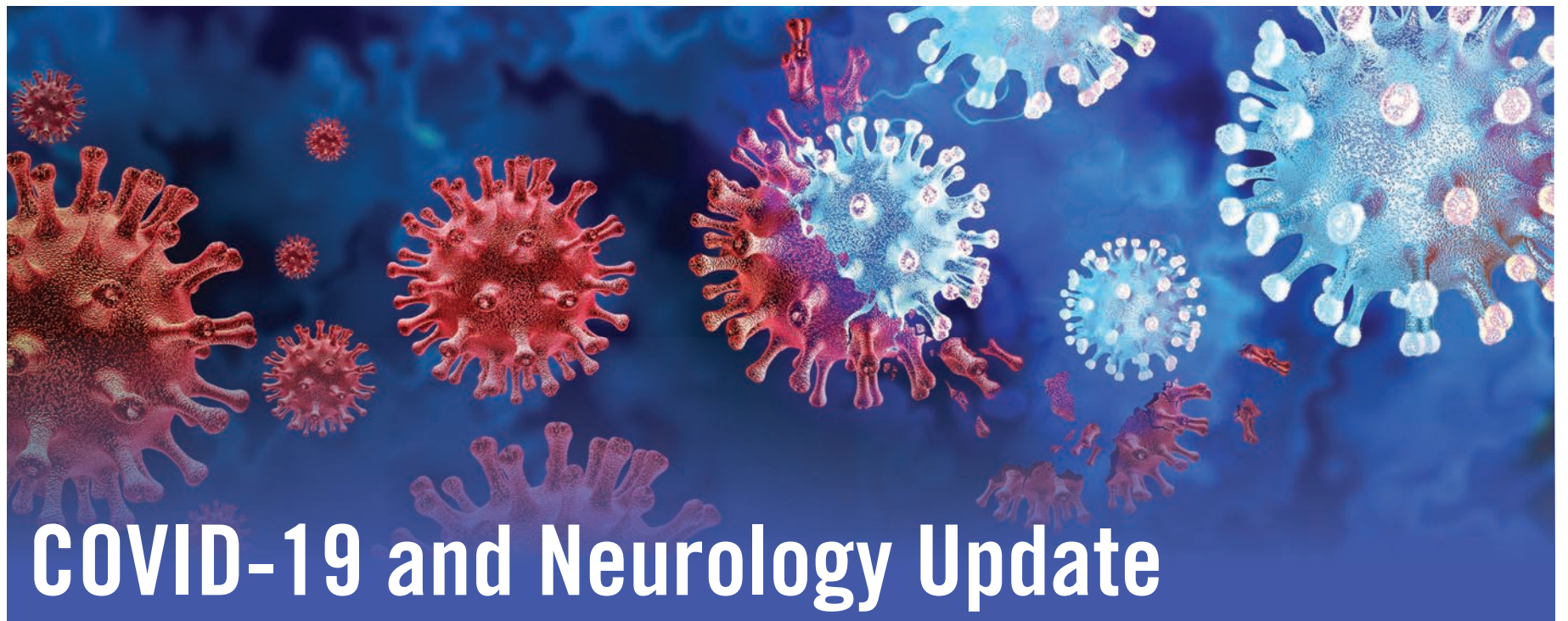
## References

1. Shimizu T, Sakai F, Miyake H, Sone T, Sato M, Tanabe S, et al. Disability, quality of life, productivity impairment and employer costs of migraine in the workplace. *J Headache Pain*. 2021 Apr 21;22(1):29.
2. Dodick D, Edvinsson L, Makino T, Grisold W, Sakai F, Jensen R, et al. Vancouver Declaration on Global Headache Patient Advocacy 2018. *Cephalalgia*. 2018 Nov;38(13):1899–909.
3. Dodick DW, Ashina M, Sakai F, Grisold W, Miyake H, Henscheid-Lorenz D, et al. Vancouver Declaration II on Global Headache Patient Advocacy 2019. *Cephalalgia*. 2020 Sep;40(10):1017–25.
4. Fujitsu Honored by the International Headache Society - Global Patient Advocacy Coalition as a World Leader in Migraine Workplace Awareness, Education, and Employee Support Programs [Internet]. Fujitsu Global. [Cited 2022 Mar 19]. Available from:

<https://www.fujitsu.com/global/about/resources/news/press-releases/2022/0302-01.html>

**Note:** The WFN has no financial relationship or any other conflicting interests with Fujitsu.





# COVID-19 and Neurology Update

BY B. JEANNE BILLIOUX, MD, AND  
AVINDRA NATH, MD, AND EDITED BY  
CHANDRASHEKHAR MESHAM, MD

In this month's neurology and COVID-19 review, we've included several topics that have arisen in the literature and news, including new updates regarding long COVID/PASC and neurologic outcomes of infants born to mothers with COVID-19.

Post-acute sequelae of SARS-CoV-2 (PASC) or long COVID continues to be a puzzling entity. However, numerous new studies are underway to help better understand the nature of this syndrome and the mechanisms involved in its pathogenesis, including neurologic aspects.



B. JEANNE  
BILLIOUX



AVINDRA  
NATH



CHANDRASHEKHAR  
MESHAM

This month, the initial findings from the University of San Diego NeuCOVID longitudinal cohort study was published, describing the neurologic manifestations in two cohorts: Patients referred to the neurology department after recovering from COVID-19, and patients with pre-existing neurologic disorders who subsequently were diagnosed with COVID-19.

In this cohort of 56 patients, fatigue was the most commonly reported symptom at baseline (89.3%), followed by headache (80.4%), insomnia (66.1%), and memory impairment (64.3%). Almost all patients had a baseline assessment at least 28 days after onset of neurological symptoms, with a median of 16 weeks from infection. In those who were able to follow up six months later, a small number (n=9) noted resolution of their symptoms, but others reported persistent fatigue

(52.2%), memory complaints (68.8%), insomnia (51.3%), headache (45%), and difficulty concentrating (47.6%). However, many of these symptoms had lessened in severity.

MOCA scores generally improved over time in patients who were able to follow up (from average score of 26 to 28/30), although MOCA scores declined in about one quarter of these patients. Interestingly, a small subset of patients (7.1%) displayed a triad of symptoms, including tremor, ataxia, and cognitive dysfunction (Shanley 2022).

Another neurologic post-COVID study from Italy found that PASC patients could usually be grouped into two

cohorts of PASC/long-COVID based on their neurologic symptoms. The first cohort typically presented with a constellation of memory issues, headache, psychological issues, anosmia, and ageusia; the second cohort presented with symptoms referable

to the peripheral nervous system (PNS). Upon analysis of risk factors for either cohort, the cohort with PNS-related symptoms was found to be more likely to have had a larger number of comorbidities at onset, a more severe course of COVID-19, as well as a higher number of non-neurologic COVID complications (Grisanti 2022). Longitudinal cohorts such as these will be informative for the natural history of PASC and its neurologic manifestations, as well as the potential long-term socioeconomic impact, and will help guide modes of intervention.

Several studies are ongoing to elucidate the pathogenesis of the neurologic sequelae of COVID-19. A paper published in *Cell* this month described diffuse microglial cell activation in the brain of patients who had died despite a mild respiratory infection with SARS-CoV-2. This was replicated in a humanized mice

model of a mild form of SARS-CoV-2 infection. There was no evidence of SARS-CoV-2 neuroinvasiveness (as evidenced by lack of virus in the CNS), however the mice displayed elevated levels of cytokines in both the serum and CSF at 7 days post-infection. Moreover, these mice were found to have increased levels of microglial/macrophage reactivity in the subcortical white matter, as well as upregulation of inflammatory gene expression in these microglia. They also found that the hippocampi of these mice had microglial/macrophage activation with impairment of neurogenesis that persisted several weeks post infection. This was accompanied by decreased levels of oligodendrocytes and oligodendrocyte precursor cells in the subcortical white matter. These findings suggest that even mild infections with SARS-CoV-2 may lead to persistent neurologic inflammation, myelin dysregulation, and decreased hippocampal neurogenesis, which may lead to the neurologic symptoms currently seen in long COVID/PASC, such as memory impairment and "brain fog" (Fernández-Castañeda 2022).

Another interesting topic in the news this month is on the outcome of infants born to mothers infected with SARS-CoV-2. A cohort study of 7,772 infants, with 222 infants born to mothers who tested positive for SARS-CoV-2 during pregnancy, found that infants born to mothers with COVID-19 during pregnancy had a higher risk of being diagnosed with neurodevelopmental abnormalities over a 12-month time period (OR 2.17), with a higher risk (OR 2.34) associated with infections during the third trimester. This risk was present after adjusting for a variety of factors, including preterm labor (which can be associated with SARS-CoV-2 infection (Edlow 2022)). These findings warrant further evaluation, but could reflect potential detrimental effects of SARS-CoV-2-related inflammation on fetal brain development, similar to other known maternal infections. •

Avindra Nath, MD, is chief of the Section of Infections of the Nervous System and Clinical Director, National Institute of Neurological Disorders and Stroke (NINDS), National Institutes of Health in Bethesda, Maryland.

B. Jeanne Billieux, MD, is staff clinician and head of the program in International Neuroinfectious Diseases within NINDS. Her research focus is on emerging infectious diseases and conducting research on the neurological consequences of infections in an International setting.

Chandrashekhhar Meshram is co-opted trustee of the WFN.

## References

- Shanley JE, Valenciano AF, Timmons G, Miner AE, Kakarla V, Rempe T, Yang JH, Gooding A, Norman MA, Banks SJ, Ritter ML, Ellis RJ, Horton L, Graves JS. Longitudinal evaluation of neurologic-post acute sequelae SARS-CoV-2 infection symptoms. *Ann Clin Transl Neurol.* 2022 Jun 15. doi: 10.1002/acn3.51578. Epub ahead of print. PMID: 35702954. DOI: [10.1002/acn3.51578](https://doi.org/10.1002/acn3.51578)
- Grisanti SG, Garbarino S, Barisione E, Aloè T, Grosso M, Schenone C, Pardini M, Biassoni E, Zaottini F, Picasso R, Morbelli S, Campi C, Pesce G, Massa F, Girtler N, Battaglini D, Cabona C, Bassetti M, Uccelli A, Schenone A, Piana M, Benedetti L. Neurological long-COVID in the outpatient clinic: Two subtypes, two courses. *J Neurol Sci.* 2022 Jun 3;439:120315. doi: 10.1016/j.jns.2022.120315. Epub ahead of print. PMID: 35717880; PMCID: PMC9212262. DOI: [10.1016/j.jns.2022.120315](https://doi.org/10.1016/j.jns.2022.120315)
- Fernández-Castañeda A, Lu P, Geraghty AC, Song E, Lee MH, Wood J, O'Dea MR, Dutton S, Shamardani K, Nwangwu K, Mancusi R, Yalçın B, Taylor KR, Acosta-Alvarez L, Malacon K, Keough MB, Ni L, Woo PJ, Contreras-Esquivel D, Toland AMS, Gehlhausen JR, Klein J, Takahashi T, Silva J, Israelow B, Lucas C, Mao T, Peña-Hernández MA, Tabachnikova A, Homer RJ, Tabacof L, Tosto-Mancuso J, Breyman E, Kontorovich A, McCarthy D, Quezado M, Vogel H, Hefti MM, Perl DP, Liddelow S, Folkerth R, Putrino D, Nath A, Iwasaki A, Monje M. Mild respiratory COVID can cause multi-lineage neural cell and myelin dysregulation. *Cell.* 2022 Jun 13;S0092-8674(22)00713-9. doi: 10.1016/j.cell.2022.06.008. Epub ahead of print. PMID: 35768006; PMCID: PMC9189143. DOI: [10.1016/j.cell.2022.06.008](https://doi.org/10.1016/j.cell.2022.06.008)
- Edlow AG, Castro VM, Shook LL, Kaimal AJ, Perlis RH. Neurodevelopmental Outcomes at 1 Year in Infants of Mothers Who Tested Positive for SARS-CoV-2 During Pregnancy. *JAMA Netw Open.* 2022 Jun 1;5(6):e2215787. doi: 10.1001/jamanetworkopen.2022.15787. PMID: 35679048; PMCID: PMC9185175. DOI: [10.1001/jamanetworkopen.2022.15787](https://doi.org/10.1001/jamanetworkopen.2022.15787)



# Public Education Activities in India

BY CHANDRASHEKHAR MESHRAM, NIRMAL SURYA, U MEENAKSHISUNDARAM, AND GAGANDEEP SINGH.

The Indian Academy of Neurology is highly committed to public education and awareness activities regarding neurological disorders. It carries these events throughout the year. The idea is to educate general public about the disorders in order to help them for early diagnosis and better patient care. In view of the COVID pandemic, these activities were organized as virtual meetings and were well attended. The audience also got the opportunity to interact with the experts.

IAN President Nirmal Surya inaugurated the events. National coordinator for IAN public awareness programs, Chandrashekhhar Meshram, had prepared and released the press notes and organized the sessions. Articles were published in leading newspapers. Some sessions were also organized in regional languages.

## World Neglected Tropical Disease Day – Jan. 30

NTDs are widespread in the world's poorest regions, where water safety, sanitation, and access to health care are substandard. NTDs affect over 1 billion people globally and are caused mostly by a variety of pathogens including viruses, bacteria, parasites, fungi, and toxins. Gagandeep Singh, president-elect of IAN, Manish Modi, Shripad Pujari,

Devashish Ruikar, Rajesh Verma, and Chandrashekhhar Meshram were the expert panelists. Rahul Kulkarni, chair of Tropical Neurology subsection of IAN, was the moderator.

## International Epilepsy Day – Feb 14

Epilepsy is a social stigma and the attitude of the community toward people with epilepsy is negative. Although epilepsy can be controlled by medicines in 75% of people, there is a treatment gap of 80% in those living in low middle income countries due to lack of knowledge and unavailability of medicines. Sangeeta Rawat, Chaturbhuj Rathod, Sita Jayalakshmi, and Dinesh Nayak participated in panel discussion. IAN Secretary U Meenakshisundaram moderated the session. Programs were also organized regionally by Gautam Ganguly, M A Aleem, K Ummer, and U Meenakshisundaram.

## World Tuberculosis Day – March 24

Tuberculosis is the deadliest infectious disease killer and is endemic in 22 countries. The theme for the year is "invest in TB to save lives." About one lakh cases of TB meningitis are diagnosed each year with mortality of about 30%. Sarosh Katrak, Ravindra Kumar Garg, Rohit Bhatia, and Thomas Lype interacted with moderators Rahul Kulkarni and Manish Modi to highlight different aspects of CNS TB.

## Purple Day – March 26

Purple Day is an international grassroots effort dedicated to increasing awareness about epilepsy worldwide. Mamta Bhushan Singh, Ashalata, Amit Haldar, and Jayanti Mani participated in the event moderated by Sita Jayalkshmi. M A Aleem's interview was published in the newspaper.

## World Autism Awareness Day – April 2

Autism Spectrum Disorders are on the rise, and one out of 150 children may suffer from the same. A child who has difficulty in communication, difficulty in socialization, and peculiar traits like repetitive speech and behavior, usually should be suspected for autism. It is important to diagnose and intervene early. The condition is four times more common in boys as compared to girls. Environmental and genetic factors may be responsible.

There is no cure for autism but through a multidisciplinary team approach, patients can be helped to a great extent. Vrujesh Udani, Alka Subramanyam, Shefali Gulati, Koyeli Sengupta, Sonal Chitnis, Trupti Nikhalje were the panelists. Pediatric Neurology Subsection Convener K P Vinayan moderated the session. Priyadarshini Raut, parent of autistic child, narrated her experiences and triumph over the condition of her son who became an engineer and is working for a software company.

## World Parkinson's Day – April 11

This day symbolizes a time to raise awareness and advance research toward better therapies and a cure for Parkinson's disease (PD). With increase in life expectancy, the prevalence of this neurodegenerative disease is on the rise.

Sanjay Pande, Rajinder Dhamija, U Meenakshisundaram, and Sumit Singh shared their views and interacted with movement disorder subsection chair Achal Shrivastava and convener Ravi Yadav.

## World Multiple Sclerosis Day – May 30

Every five minutes, someone receives the life-altering diagnosis of multiple sclerosis. More than 2.8 million people of all ages live with multiple sclerosis around the world. This neurological disease impacts every aspect of a person's life, with effects ranging from cognitive impairment to significant physical disability. Early diagnosis and access to proven disease-modifying treatments are vital to improving patient quality of life and significantly halting disease progression. Dheeraj Khurana, Lekha Pandit, R. Suresh Kumar, and Kunal Bahrani were the panelists while Manish Mahajan moderated the session.

IAN is planning to celebrate World Brain Day on July 22 in grand way with 100 activities over the week.

Chandrashekhhar Meshram is the co-opted trustee of the WFN, U Meenakshisundaram is IAN secretary, Gagandeep Singh, is president-elect of IAN, and Nirmal Surya is IAN president.

### EPILEPSY IS TREATABLE AND PREVENTABLE

INTERNATIONAL EPILEPSY DAY TODAY

Epilepsy is a common chronic disease of the brain. International Epilepsy Day is observed every year on second Monday of February to create public awareness and impart education about the disease

**THE NUMBERS**

- 12 million | Epilepsy patients in India, about six per 1,000 population
- 50 million | Epilepsy patients globally
- 50 | New epilepsy cases per 1L population every year (As per Indian Academy of Neurology)

**TREATMENT**

- 80% patients in low-income countries untreated due to lack of knowledge and non-availability of medicine
- Surgery can be a cure in about 50% patients whose seizures remain uncontrolled even with medications\*
- Epilepsy highly misunderstood though it is treatable

**INCIDENCE**

- Epilepsy affects both the sexes
- In about 75% patients, seizure control can be achieved with medications

**COMMON CAUSES**

- Birth: head injuries, brain infection, infections and unhealthy lifestyle
- Stroke
- Brain tumor
- Brain infection
- Brain injury
- Brain infection
- Brain injury

**PREVENTION**

- Lifestyle modification, de-addiction, preventing infection and injuries can help
- General attitude towards epilepsy patient is negative. We need to work together to give the patients and their family members a chance at leading a better life

**DR CHANDRASHEKHAR MESHRAM** | PRESIDENT OF TROPICAL NEUROLOGY GROUP AND TRUSTEE OF WORLD FEDERATION OF NEUROLOGY

**DR PALAK JAIS** | CONSULTING NEUROLOGIST

**TODAY'S EVENT** | Indian Academy of Neurology (IAN) has an online public education and awareness activity on epilepsy on Monday. The programme will be streamed on IAN's YouTube channel and Facebook page. Participants can ask questions and interact with the faculty

### 9 हजार लोकांमध्ये मिरगीचे सहा रुग्ण

डॉ. निर्मल सूर्या : अज्ञान व औषधी अभावाने उपचाराला मुकतात

आंतरराष्ट्रीय अपस्मार दिन

लोकमत न्यूज नेटवर्क

नागपूर : अपस्मार हा मेंदूचा एक सामान्य आजार आहे. भारतात हजार लोकांमध्ये मिरगीचे (अपस्मार) सहा रुग्ण आढळून येतात. जगात या रोगाचे पाच कोटी तर भारतात जवळपास एक कोटी 20 लाख रुग्ण आहेत. गरीब देशातील 60 टक्के रुग्ण अज्ञानामुळे किंवा औषधीच्या अभावामुळे उपचाराला मुक्त असल्याचे धक्कादायक चित्र आहे, अशी माहिती इंडियन अकॅडमी ऑफ न्यूरोलॉजीचे अध्यक्ष डॉ. निर्मल सूर्या यांनी दिली. फेब्रुवारी महिन्याचा दुसरा सोमवार हा मिरगी दिवस म्हणून पाळला जातो. त्यानिमित्ताने आयोजित

आयोजित चर्चासत्रात ते बोलत होते. डॉ. सूर्या म्हणाले, सुमारे 60 टक्के रुग्णांमध्ये अपस्मारविरोधी औषधांद्वारे चांगले नियंत्रण मिळवता येते. उर्वरित 20 टक्के रुग्णांपैकी जवळपास 50 टक्के रुग्णांमध्ये अपस्मार शस्त्रक्रियेने भारत व गरीब आजारखांदे पाठवण्या

आयोजित चर्चासत्रात ते बोलत होते. डॉ. सूर्या म्हणाले, सुमारे 60 टक्के रुग्णांमध्ये अपस्मारविरोधी औषधांद्वारे चांगले नियंत्रण मिळवता येते. उर्वरित 20 टक्के रुग्णांपैकी जवळपास 50 टक्के रुग्णांमध्ये अपस्मार शस्त्रक्रियेने भारत व गरीब आजारखांदे पाठवण्या

### Six persons in every 1,000 have epilepsy in country

1.2 crore patients in India, says Dr Nirmal Surya

Need to clear misunderstandings! There are many misconceptions that epilepsy is a contagious disease and it is caused due to ghost or divine wrath. In order to control this disease, it is necessary to create awareness and dispel misconceptions. This requires working together.

— DR CHANDRASHEKHAR MESHRAM, President and Trustee of Indian Academy of Neurology

### Society should change attitude towards epilepsy patients: Dr Meshram

During attack of Epilepsy

Today's programs

Indian Academy of Neurology has planned a public education and awareness activity on epilepsy on Monday. The programme will be streamed on IAN's YouTube channel and Facebook page. Participants can ask questions and interact with the faculty

### मेंदू, पाठीच्या कण्यातील थर खराब करतोय 'मल्टिपल स्क्लेरोसिस'

दर पाच मिनिटात एकाला आजार : अशक्तपणा ते अक्षमतेपर्यंत

लोकमत न्यूज नेटवर्क

नागपूर : मेंदू व पाठीच्या कण्यातील 'मल्टिपल स्क्लेरोसिस' (एएमएस) म्हणून खरब खरब आजार म्हणून मल्टिपल स्क्लेरोसिस ओळखला जातो. याचा प्रभाव अशाक्तपणापर्यंत होतो. आजार दर पाच मिनिटांनी एकाला या आजाराचे निदान होतो अशी माहिती, 'दुर्लभ न्यूरोलॉजी मेसालिटी शुभ ऑफ इन्व्हॉल्यूशनल अँड रीजेनरेशन मेसालिटी'चे अध्यक्ष डॉ. चंद्रशेखर मेसाम यांनी दिली.

30 ते 40 दिवस आजार मल्टिपल स्क्लेरोसिस (एएमएस) म्हणून पाळला जातो. या रोगाच्या जन्मासाठी जनुकीय त्रुटी किंवा रोगाची संज्ञा देण्यात येते. डॉ. मेसाम म्हणाले, हा आजार रोगाच्या नेके कारणे पुढे आलेले नव्हे. परंतु, यात अज्ञानाच्या व पर्यायाने हे दोन्ही बाजूक आहेत.

डॉ. चंद्रशेखर मेसाम, न्यूरोलॉजिस्ट

### Multiple Sclerosis impacts every aspect of a person's life, say doctors

Today's event

Indian Academy of Neurology (IAN) has planned a public education and awareness activity on Multiple Sclerosis on Monday. The programme will be streamed on IAN's YouTube channel and Facebook page. Participants can ask questions and interact with the faculty

**DR CHANDRASHEKHAR MESHRAM** | PRESIDENT OF TROPICAL NEUROLOGY GROUP AND TRUSTEE OF WORLD FEDERATION OF NEUROLOGY

**DR NIRMAL SURYA** | SECRETARY OF INDIAN ACADEMY OF NEUROLOGY

**DR B S SINGHAL** | DIRECTOR OF NEUROSCIENCES AT BOMBAY HOSPITAL, MUMBAI AND CHAIRMAN OF AUTOIMMUNE DISORDER SUBSECTION OF IAN.

### भारतात मिरगीचे 1.20 कोटी रुग्ण

आज आंतरराष्ट्रीय अपस्मार दिन : प्रतिहजारमागे 6 जणांना आजार

हे कंठ लावा

अपस्मार बद्दल तज्ञ करणार चर्चा

आज आंतरराष्ट्रीय अपस्मार दिवस साजरा करताना डॉ. चंद्रशेखर मेसाम यांनी पत्रकार परिषद घेतली. डॉ. चंद्रशेखर मेसाम यांनी पत्रकार परिषद घेतली. डॉ. चंद्रशेखर मेसाम यांनी पत्रकार परिषद घेतली.



## PRESIDENT'S COLUMN

continued from page 1

Organizations at its 2022 Regular Session, held in May and June, decided to recommend the World Federation of Neurology for special consultative status with ECOSOC. This recommendation is subject to the endorsement of the Economic and Social Council, which will consider and take action on the committee's recommendations at a management meeting in late July 2022.

One of the critical, wide-ranging activities of ECOSOC is the [Sustainable Development Goals](#) (SDGs). The SDGs are a "blueprint to achieve a better and more sustainable future for all." They address the global challenges we face, including health, poverty, inequality, climate change, environmental degradation, peace, and justice.

### World Brain Day

Brain health and IGAP are closely connected with WFN's [World Brain Day](#) (WBD). This year, the topic of World Brain Day is Brain Health, with the tagline "Brain Health for All." The WBD organizing committee has all six WFN regional associations involved in planning, and we hope to continue the momentum of this positive communication after July 22.

The topic of brain health also links with our previous Brain Health Initiative, WHO's Brain Health unit, the IGAP, and many other activities such as the EAN Brain Health summit. To celebrate WBD on July 22, the WFN will host a webinar, which will focus on key messages of brain health, provide statements from the regions, and offer a Q/A session. We hope the WFN Member Societies will be able to celebrate WBD in their countries and regions. A toolbox with useful WBD material can be downloaded from the WFN website.

### Council of Delegates

The Council of Delegates meeting (COD) is the annual decisive meeting of the WFN. This year's meeting will take place Oct. 25, 2022, in Amsterdam, in conjunction with the ECTRIMS conference. It will be a live meeting of delegates, but we will also provide a hybrid platform for those who cannot attend.

An Officer and Elected Trustee will be voted on 1) the position of the Secretary-General (vacated by myself), and the position of one trustee (vacated by Steven Lewis). The WFN Nominating Committee has scrutinized the applications, and you will find their proposal and all the candidates' statements on the website soon. As in all COD meetings, the Trustees' Report and several other reports and documents will be presented to the delegates.

Voting will be electronic, before the in-person portion of the meeting. Instructions and help will be provided by the WFN secretariat.



Wolfgang Grisold delivering the WFN statement.

### Education, Training Centers, and Department Visits

One of the core activities and mission of the WFN is to promote quality neurology through education. We are glad that the educational activities of the WFN prosper, and the trustees have decided to add a 4-year complete training to Rabat and also a fellowship on stroke in Cape Town.

This increases our 4-year training positions in Africa to three, and the WFN 1-year fellowships in Africa to four. We are indebted to our Specialty Group on Neuromuscular Disease and their International Congress on Neuromuscular Disease (ICNMD), which sponsors an additional fellowship for neuromuscular diseases in Rabat and also has invited the last ICNMD trainee to the ICNMD congress in Brussels this year.

The next fellowship calls will be for Cairo and Mexico. A site for the Asian Training Center has not been decided upon.

The WFN's mission to provide education is aimed not only at supporting individual training but to help and empower the regions in their efforts to train neurologists in high-standard WFN teaching centers. This activity in Africa is achieved jointly with African Academy of Neurology (AFAN), and in Latin America with the Mexican Academy of Neurology and Pan American Federation of Neurology (PAFNS).

The WFN Department Visits were paused during the COVID pandemic, and we have now advertised Department Visits for Austria, Canada, and Germany, with a total of nine positions open. We are grateful to our Member Societies for giving young neurologists this important opportunity.

### Educational Days

The WFN has developed the concept of E-learning Days, which were initially aimed at Africa. This is a one-day concept with a mix of regional and international speakers. The WFN and AFAN have organized E-learning Days on stroke and epilepsy. This year's theme is movement disorders, to be held on Sept. 3.

In cooperation with AFAN and the International Headache Society Global Patient Coalition (IHS GPAC), we have had

another virtual program on "Education in Headache to Healthcare Providers in Africa." We want to thank our partners for their generous support.

Participation in the educational days is free, and a certificate of attendance can be obtained after providing feedback on the event.

The platform for the educational days has been well established, and many thanks to Riadh Gouider, who spent considerable time building this structure jointly with a Tunisian professional conference organizer (PCO).

### Webinar

In March, the WFN held a webinar on "The Neural Regulation of Cancer," organized by the WFN Specialty Group on Neuro-Oncology on the topic of "The Neural Regulation of Cancer."

It was a high-quality webinar focusing on new aspects of neurobiology. This webinar was hosted with the successful cooperation of the Society for Neuro-Oncology (SNO) and had 300 attendees.

### Congresses and Meetings

#### International Congress of Neuromuscular Diseases ICNMD

The WFN Neuromuscular Specialty Group, the ICNMD, is preparing for the congress in Brussels in July. All topics of neuromuscular diseases are covered, and it seems the large number of participants that was reached at the ICNMD 2018 in Vienna will be reached again. The local organizing chair is Prof. Gauthier Rémiche from Brussels, and the PCO is ICS.

The WFN ICNMD will have a session on neuromuscular issues in low-income parts of the world, and will be chaired by Riadh Gouider and Wolfgang Grisold.

The next ICNMD congress will be in Perth in 2025, and a call for the ICNMD following Perth is going out soon.

#### World Congress of Neurology (WCN) 2023

The next WCN will be in Montreal, Canada, from Oct. 13-19, 2023.

The Canadian Neurological Society will co-host this congress, and the congress chair is Prof. Guy Rouleaux, WFN vice president.

The preparations for the scientific program are in full development and



Wolfgang Grisold at the WHO

chaired by Prof. Matthew Kiernan. Please follow our website and social media for further developments and announcements. For the second time, this congress will be in part also virtually available as a hybrid.

#### World Congress of Neurology WCN 2025 Seoul

Following the WCN in Montreal, the next WCN in 2025 will take place in Seoul, South Korea, and the organizational work has been initiated.

#### EAN Vienna, June 2022

At the end of June, the European Academy of Neurology (EAN) held its congress in Vienna, Austria. The WFN had a leadership meeting with the EAN, a [joint session on brain health](#), and hosted a mixed live/virtual WFN trustee meeting. In addition to the Regional Teaching Course and the participation of the WFN in the Brain Health Summit, further cooperation was discussed.

We will continue to participate in meetings of each of the six regional associations and have joint sessions to discuss present issues and provide visions for the future.

### Summary

The past months have been a success for neurology worldwide, with the WFN actively involved. Special thanks to the previous administration, Prof. Bill Carroll, who was supported by Prof. Alla Guekht and WFN Strategy and Program Director Kimberly Karlshøj, who proceeded with the important activity of relations with the WHO and IGAP and also laid the foundations of this continuing development.

Yet celebration needs to be followed by action, and the IGAP will need further work and implementation, which consists of awareness and advocacy for political action, treatment and therapy, rehabilitation, prevention, innovation, and research. All WFN Member Societies are invited to be involved in this global mission.

The implementation of IGAP is a vast worldwide advocacy project, which demands effort — both bottom-up and top-down approaches are needed. •





WORLD FEDERATION  
OF NEUROLOGY



CANADIAN  
NEUROLOGICAL  
SCIENCES  
FEDERATION  
FÉDÉRATION  
DES SCIENCES  
NEUROLOGIQUES  
DU CANADA

# WCN 2023

XXVI WORLD CONGRESS  
OF NEUROLOGY

# MONTREAL

15-19 OCTOBER 2023



[2023.wcn-neurology.com](https://2023.wcn-neurology.com) | [#WCN2023](https://twitter.com/WCN2023)