



WORLD NEUROLOGY

THE OFFICIAL NEWSLETTER OF THE WORLD FEDERATION OF NEUROLOGY

PRESIDENT'S COLUMN

Educational Opportunities, World Congresses, and Outreach

WFN president looks back on a successful 2024 and ahead to a busy 2025.

BY PROF. WOLFGANG GRISOLD

World Neurology is not only a source of information, but also a useful chronicle of the World Federation of Neurology (WFN), tackling and discussing contemporary issues. You can trace and follow developments in neurology in [the archive](#). It is currently edited by Prof. Steven Lewis and Prof. Walter Struhal, who, in addition to publishing important news and publications of the WFN, gather articles from all over the world to make us aware not only of the ongoing changes and developments, but also the reality of neurology in real-world conditions. These conditions, in particular in low-middle- and low-income countries, may be quite different than the ivory-tower-like outlook on neurology found in higher-income countries.

Large gaps of access and availability exist in neurology worldwide, which is mainly dependent on local income, the **sociodemographic index (SDI)**, and the **North-South divide**. These gaps are further widened by war, crisis, insecurity, and other threatening factors. The compassion of the WFN is for all persons suffering neurological damages and deficiencies, including from wars and injuries. As proclaimed in the World Brain Day (WBD) motto from 2024, brain health and prevention have become major global issues and may not be available in low- and lower-middle-income countries. Yet, it is one of our most powerful medical interventions.

Looking Back on 2024

In 2024, the WFN steadily introduced new accomplishments and developments, including successful interactions with the World Health Organization (WHO)

and the United Nations Economic and Social Council (ECOSOC). (You can find a full list on the [WFN website](#).) The main focus on the WHO activities is the **Intersectoral Global Action Plan (IGAP)** on epilepsy and other neurological disorders and its implementation in the larger context of brain health.

Prof. Alla Guekht and I participated in some of the United Nations ECOSOC meetings and were welcomed and received twice by U.N. ECOSOC President and Canadian Ambassador Bob Rae. We met with him in November 2024 and confirmed a cooperation between the United Nations and the WFN in regard to the next World Brain Day. We agreed on the theme of **"Brain Health for All Ages."**



WOLFGANG
GRISOLD

To preserve and enhance continuity of the WFN's information on neurologic development, an initiative was launched in 2024 by our professional conference organizer (PCO). Because the two-year time between the World Congress of Neurology meetings is too long, and we wanted to match the rapidly evolving developments of

diagnosis and therapies in neurology, we developed the **WFN Digital Neurology Update (WNU)**. This will be repeated in between the congresses. The first WNU featured excellent speakers and hosted an audience representing 60 countries. Following the WNU, several short update papers will be available in the *eNS*, the WFN's open access journal.

For the second year, we have continued

see **PRESIDENT'S COLUMN** page 2

CONFERENCE REPORT

The First Aden International Neurology Conference

Updates on multiple sclerosis, stroke, and more.

BY AUSSAN AL-ATHWARI, MD

The first Aden International Neurology Conference (ANC) brought together over 400 researchers, physicians, and experts

in neurology, neurosurgery, internal medicine, radiology, psychiatry, and pediatrics to discuss updates in the field of neurology at the Crown Resort in Aden, Yemen.

The conference, which was held

Dec. 18-19, 2024, was organized by the Aden Neurology Advisory Board (ANAB). Prof. Riadh Gouider, co-chair of the World Federation of Neurology (WFN) Education Committee, attended the opening ceremony and presented a report on the latest guidelines from the Middle East North Africa Committee for Treatment and Research in Multiple Sclerosis (MENACTRIMS).

Prof. Steven Lewis, WFN secretary general, Prof. Hatem Samir, Egyptian Society for Neurologic, Psychiatric,

and Neurosurgery (ESNPN) general secretary, and Prof. Hesham Masoud, associate professor of neurology and neurosurgery at the State University of New York's Upstate Medical University in Syracuse, participated via Zoom.

The Yemen Neuroscience Society (YNS), a WFN member, is located in the capital city of Sanaa. Because of the ongoing political crisis in Yemen, the scientific activities are being held in Aden. ANAB has initiated activities for the

see **ANC** page 4

INSIDE

IN MEMORIAM:
PROF. STEPHAN ZIERZ

PAGE 3

JUNIOR TRAVELING
FELLOWSHIP REPORT

PAGE 4

SEQUINS: IMPACT
THROUGH INSIGHT

PAGE 6

HEADACHE AND MIGRAINE IN
SHAKESPEARE'S WORK

PAGE 7



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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 Media.

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World Neurology, ISSN: 0899-9465, is published bimonthly by Ascend Media, 401 SW Ward Road, Suite 210, Lee's Summit, MO 64081
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FROM THE EDITORS

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

Welcome to the January/February 2025 issue of *World Neurology*, the first issue of this new year.

In this issue's President's Column, World Federation of Neurology (WFN) President Prof. Wolfgang Grisold chronicles important 2024 WFN events and provides an outlook for some of the many exciting plans for 2025.

Drs. Raelle Tagge, Lilyana Amezcua, and Bruce Ovbiagele provide an introduction to the U.S.-based Society for Equity Neuroscience (SEQUINS), which is dedicated to enhancing equitable neurological care and outcomes via research.

This issue also includes two reports from young neurologists who participated in important experiences organized through the WFN. Dr. Aïssata S. Touré, a neurology resident from Mali, reports on her month-long neurology department visit to Dusseldorf, Germany, supported by the German Neurological Society (DGN). The WFN thanks the DGN for providing this wonderful opportunity for young



STEVEN L. LEWIS, MD



WALTER STRUHAL, MD

neurologists from low- and lower-middle income countries from Sub-Saharan Africa.

Dr. Bermet Nurbekova, a young neurologist from Bishkek, Kyrgyzstan, reports on her attendance at the 15th European Epilepsy Congress. Her attendance to the congress held last September in Rome, Italy, was made possible through her WFN Junior Traveling Fellowship.

This issue also includes the announcement that Prof. Raad Shakir, a past president of the WFN, has been appointed as president of the Joint Neurosciences Council (JNC) UK, effective Jan. 1, 2025. The JNC UK is the umbrella organization for 18 neurosciences specialty

associations. The WFN congratulates Prof. Shakir on this important appointment.

In this issue's History Column, Dr. Peter Koehler delves into the topic of headache and migraine as it was recognized in the time of Shakespeare, and as reflected in his work.

Dr. Aussen Al-Athwari reports on the first Aden International Neurology Conference (ANC) that occurred in December 2024 and brought more than 400 participants to Yemen to discuss updates in the field of neurology. Prof. Lewis, editor of *World Neurology*, was privileged to participate in this seminal conference. We congratulate the organizers for hosting this conference for the region.

This issue also includes an obituary for Prof. Stephan Zierz. Written by Drs. Benedikt Schoer, Jan Kuks, and Marianne Devisser, the article details Prof. Zierz's profound impact on the field of neurology and neuromuscular medicine.

We thank all neurologists and neurologic trainee readers in all regions of the world for your interest in the WFN and in *World Neurology*. We look forward to your contributions to this publication in 2025. •

PRESIDENT'S COLUMN

continued from page 1

to publish the WFN Service Pages, which appear in the *Journal of the Neurological Sciences (JNS)*. These carefully selected articles should enhance awareness of our activities worldwide and give a more detailed impression to our readers. We invite you to contribute any worldwide activities for use on our service pages.

One of the main WFN tasks is education, which is discussed in many of our letters and mailings. In 2024, for the first time, we completed visits to all African WFN Training Centers. We started in Cairo, Egypt, followed by a visit to Dakar, Senegal, during the summer, and in October wrapped up with visits to Rabat, Morocco, and Cape Town, South Africa. It gave us a good look at the practical teaching and allowed us to communicate with the faculty, residents, and trainees. The results were informative and impressive. I want to emphasize that the WFN at present finances three four-year trainees in Africa, plus five one-year fellowships. This is a large responsibility with a long and time-intensive aspect. We are grateful for the support of the Cairo training position by the Association of British Neurologists (ABN), and the additional neuromuscular trainee in Rabat sponsored by the **International Congress of Neuromuscular Diseases (ICNMD)**.

For 2025, we plan to visit the Latin-American Training Center in Mexico City, which is currently hosting one fellow specializing in stroke.

The cooperation of the American Academy of Neurology (AAN) and the WFN on the journal *Continuum: Lifelong Learning in Neurology* is a decades-long



The Rabat WFN Training Center team (left to right): Prof. Maria Benabdelajil, Prof. Steven Lewis, Dr. Leila Erguig, Dr. Nazda Birouk, Dr. Leila Tamaoui, Prof. Wolfgang Grisold, and Mostafa El Alaoui.

success story. After many years of use in countries of all levels of income, the WFN and the AAN have agreed that *Continuum* will only be made available free of charge for low-middle- and low-income countries going forward. Although this is a cut for some countries, it definitely helps us to continue the *Continuum* education in countries of need worldwide, and the WFN gladly supports the distribution and survey of the education. We find that several of our low-middle and low-income countries are not using this opportunity yet, and we invite them to apply.

The Year Ahead

This year kicked off with a conference of the WFN trustees and the regions with a now traditional extended meeting that will concentrate on the importance of the WHO and IGAP. (See key points for this year's event and WFN activities in my January "Message From the President."



Two passionate educators meet in Cape Town, South Africa. Prof. Steven Lewis (left) and Prof. Lawrence Tucker discuss the Training Center program.

For the first time, the member societies will be invited to participate in this meeting.

One of our main activities in 2025 is World Brain Day. The theme "Brain Health for All Ages." It will be held jointly with committees, collaborations, and participation from the U.N. ECOSOC.

see PRESIDENT'S COLUMN page 3

PRESIDENT'S COLUMN

continued from page 2

We also hope the WHO will take part. This World Brain Day will continue our tradition of using the momentum of July 22, 2025, to advocate for neurology, and in this case, complete the series on brain health that we started four years ago.

The next World Congress of Neurology (WCN) will take place Oct. 12-15, in Seoul, South Korea. The program committee, which includes the WFN and the local society, is developing both the scientific and educational programming. We are introducing a special set of lectures called “Brain Health Lectures.” These are not scientific lectures. They will highlight the importance of regional and global activities for neurology worldwide. They will include some plenary lectures, regional meetings, and specific WFN lectures.

We also will have the **Global Neurology Advocacy and Leadership (GALP)** meeting, a new initiative, which will be hosted jointly with the AAN. The program will start at the 2025 AAN Annual Meeting in San Diego, continue over a few months with virtual educational meetings, and end in Seoul with a live meeting and a graduation ceremony for the 20 GALP participants.

The WFN looks forward to the first meeting of the Global Advocacy and Leadership Program (GALP), a joint initiative with the AAN, as well as the first-ever Global Leadership Roundtable at the AAN Annual Meeting and co-hosted by the WFN, on Tuesday April 8th.

This is an ambitious worldwide, global venture, synthesizing the experience of advocacy and leadership of the AAN and knowledge of the needs of neurology worldwide.

Continuing with education, we will co-host the WFN and Asian and Oceanic Association of Neurology (AOAN) **Educational Day** on Feb. 15. The theme of this e-learning event is movement disorders. This event continues the tradition established with our successful educational day on neuropathies with the African Academy of Neurology (AFAN) in 2024, and also successful day on headache education with AFAN and the Global Patient Advocacy Coalition (GPAC).

We believe in the education days as one of the bases of organization for regional education, and we will be glad to organize education days in other parts of the world.

see PRESIDENT'S COLUMN page 9



Prof. Steven Lewis (center) with WFN trainees during the Rabat, Morocco, site visit.



An illustration of African countries represented in the Fourth Annual Education in Headache to Healthcare Professionals in Africa.



IN MEMORIAM

Prof. Stephan Zierz (1954 -2024)

Award-winning neurology pioneer and educational proponent was 70.

BY BENEDIKT SCHOSER, JAN KUKS, AND MARIANNE DEVISSER

Stephan Zierz, a pioneer in the field of neurology and neuromuscular medicine, was born on July 20, 1954, in Heidelberg, Germany. His father, Prof. Paul Zierz, was a well-known figure in the German Dermatological Society. In 1973, after finishing a classical gymnasium education as secondary school, Stephan Zierz enrolled for medical studies at the University of Giessen, Germany, at the age of 19. In 1980, he completed his medical studies at the University of Giessen and the University of Bonn.

He started his residency in neurology at a small clinic in Klingenstein, Germany. At the same time, he began his scientific career at the Max Planck Institute in Göttingen (1980-1983). In 1984, he joined the Neuromuscular Research Center as a research fellow at Mayo Clinic in Rochester, Minnesota. Under Dr. Andrew Engel's supervision, he worked on the biochemical characterization of carnitine palmitoyltransferase II (CPT II), one of the mitochondrial enzymes that catalyze the oxidation of long-chain fatty acids. He generated four scientific papers.

After Mayo, Stephan Zierz joined the University Hospital of Bonn as a

physician in 1986 and was promoted to senior physician in 1989. A core trigger element of his career was working with Felix Jerusalem, the most well-known myologist in Germany at that time, who also collaborated with Andrew Engel. In 1990, he completed a post-doctoral teaching degree with a paper titled “Ophthalmoplegia-Plus and Kearns-Sayre Syndrome: Clinic, Biochemistry, and Therapeutic Trials With Coenzyme Q.”

In 1994, he was appointed neurology chair at Martin Luther University Halle-Wittenberg and remained in that position until his retirement in 2021. For several years, Stephan Zierz also served as the dean of the Faculty of Medicine.

Beyond his local and national engagement for neuromuscular disorders, he was an active member of various neurological and neuromuscular societies. He organized neuromuscular sessions at the annual congress of the German Neurological Society. He was a recognized fellow of the European Academy of Neurology. He established cooperation with the Mongolian Neurological Society with annual training events and internship programs for Mongolian doctors in Germany and Mongolia.

For many years, he engaged himself with the Section of Neurology in the

Union of European Medical Specialists (UEMS), and he participated as a faithful examiner in the European Board Exam in Neurology. During the UEMS meetings, he was always eager to contribute to the mission of the Section of Neurology to support medical specialists in enhancing their skills and proficiency. After the meeting, he sat with all UEMS delegates and chatted about his encounters and experiences. It was a pleasure to join him at dinner, where classical philosophy and literature were beloved topics. Stephan Zierz was a family man who often brought his daughters — who were also devoted to neurology — along to section meetings.

Stephan Zierz's impact on the field of neurology and neuromuscular medicine was profound. His research in neuromuscular disorders earned him the highly esteemed lifetime award for a myologist in 2017: the Duchenne-Erb Prize of the German Society of Neuromuscular Disorders. This recognition was a testament to the weight of his contributions and his influence on the field, a source of pride for all who knew him.

Stephan Zierz was an excellent and enthusiastic teacher, supervisor, and author of more than 350 scientific reports



Stephan Zierz

and monographs. Many of his papers focused on mitochondrial disorders, addressing their clinical, pathological, histological, biochemical, and molecular genetic aspects.

His unique sense of humor warmly backed his endless enthusiasm, which was linked to his German perfectionism.

Stephan Zierz is sadly missed, but his legacy in international and German neurology and neuromuscular medicine will continue to inspire and guide future generations. •

WFN JUNIOR TRAVELING FELLOWSHIP 2024

A first-time attendee presents at the European Epilepsy Congress

BY BERMET NURBEKOVA

I am deeply grateful for the Junior Traveling Fellowship Grant provided by the World Federation of Neurology (WFN), which enabled me to attend the 15th European Epilepsy Congress. There, I presented my abstract, titled “Convulsive Syndrome First Aid: A Comparative Analysis of Dental and General Medicine Faculty Students’ Knowledge.”

This research was instrumental in identifying significant gaps in the understanding of first aid for convulsive syndromes between students from dental and general medicine faculties. The findings prompted revisions to the student curriculum, ensuring a more comprehensive and practical education on epilepsy and seizure management.

I was honored to represent Kyrgyzstan as the sole participant from my country. Attending the event, Sept. 7-11 in Rome, Italy, allowed me to connect with neurologists and epilepsy specialists from around the globe. Although I established connections with many professionals, I particularly strengthened ties with colleagues from Uzbekistan and Kazakhstan. These connections have laid the groundwork for potential regional collaborations on research and educational initiatives.



Bermet Nurbekova at the European Epilepsy Congress.

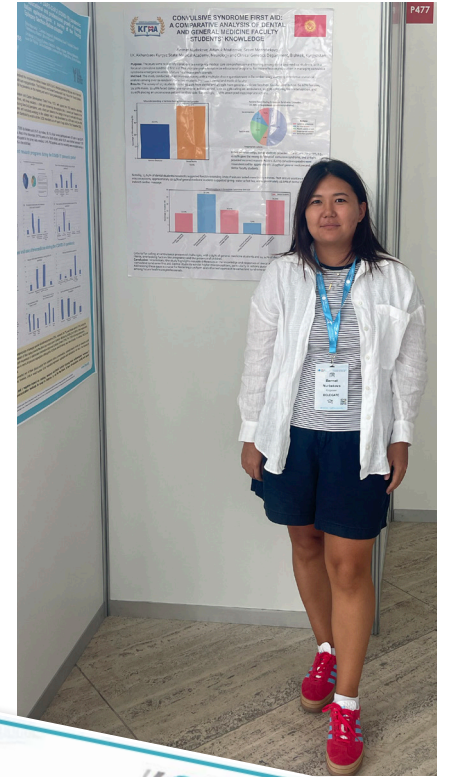
The conference sessions provided me with invaluable insights into the latest advancements in epilepsy research, diagnostics, and treatment approaches. Several key takeaways have already informed my clinical practice and ongoing research projects, enhancing the quality of care I provide to my patients. The event also served as a source of great inspiration, motivating me to participate in future international conferences to continue broadening my knowledge and professional network.

Upon my return to Bishkek, I delivered a presentation to the Neurological Association of Bishkek, sharing the key

findings and innovative practices I learned at the conference. The presentation sparked meaningful discussions and encouraged the integration of updated approaches in our local practice.

Once again, I deeply appreciate this incredible opportunity and your support, which has significantly contributed to my professional growth. •

Bermet Nurbekova is an assistant in the neurology and clinical genetics department at I.K. Akhunbaev Kyrgyz State Medical Academy in Bishkek, Kyrgyzstan.



ANC

continued from page 1

international days of stroke, epilepsy, and multiple sclerosis. It also organized the first ANC.

The ANAB members are Dr. Abdullah Al-Qadhi, conference president, Dr. Mohammed Taher, treasurer, Dr. Aussen Al-Athwari, conference coordinator, Dr. Nagween Magharef, and Dr. Addul-Rakeeb Alhakimiy.

The pre-conference workshop focused on clinical neurophysiology, interventional neurology (carotid artery stenting and thrombectomy), ultrasound-guided botulinum toxin injection in post-stroke spasticity, and focal dystonia. The fields of interventional neurology and neurosonology were launched last year in Aden by Dr. Al-Athwari, who was trained in Egypt. The first cerebral angiography was conducted Feb. 13, 2023.

The conference underscored the urgency of accelerating the transition

to modern neurology education and adopting acute stroke care policies. It was widely agreed that collaboration across all medical specialities and the YNS is essential to achieving the goals of the World Stroke Organization (WSO) and WFN. Participants also highlighted the importance of policy frameworks that support research and development in neuroscience.

Organizing the first ANC was an invaluable experience. It not only broadened our understanding of the latest advancements in neurology, but also deepened our appreciation for the complexity of global education challenges. We look forward to applying our best knowledge and making use of the support we receive from our professors in Egypt, Tunisia, and all over the world via WFN. •

Prof. Aussen Al-Athwari is a neurologist and neurointerventionist in Yemen, director of the Yemen Comprehensive Stroke Center, and coordinator of the Aden conference.



Prof. Riadh Gouider.



More than 400 people attended the first Aden International Neurology Conference in Aden, Yemen.



DEPARTMENT VISIT

An Exchange of Neurological Ideas

Report of a department visit to Dusseldorf, Germany.

BY AÏSSATA S. TOURÉ

I had the opportunity to visit the University Hospital of Dusseldorf Nov. 11-Dec. 5, 2024, thanks to a training grant provided by the German Neurological Society and the World Federation of Neurology (WFN).

This was a unique training opportunity, which allowed me to experience the neurology field in a high-level setting with well-trained physicians. I have seen several patients with different neurologists, allowing me to learn from different views and angles.

Over a period of one month, I saw approximately 50 patients presenting with different neurological conditions including

dystonia, encephalitis, epilepsy, meningitis, migraine, multiple sclerosis, myasthenia, myelitis, Parkinson's disease, and stroke.

I attended a botulinum toxin injection session, and I saw the apomorphine pump — a second line treatment for Parkinson's disease management — for the first time.

This training allowed me to enhance my clinical approach and management skills in terms of epilepsy, neurovascular diseases, and movement disorders.

During my stay in Dusseldorf, I attended sessions featuring electroencephalograms, nerve conduction

AÏSSATA S.
TOURÉ

studies and transcranial doppler (TCD) ultrasound for patients suffering from atherosclerosis, epilepsy, and neuropathy. These sessions allowed me to recognize the basic patterns of those conditions.

I also spent time in the laboratory and participated in activities, such as functional studies using cell and animal models.

After returning home, I will apply what I have learned in my daily activities. I would like to continue working to establish a strong collaboration involving my mentors and the neurology team in Dusseldorf.

I will use the acquired knowledge by regularly giving talks and participating in the training process of medical students. I will assist my young fellow residents who want to apply to the **WFN Department Visit** program to help increase their chances of being selected among their peers. I will inform and encourage those who are not aware of the program to apply.

My main interests are in the clinical and genetic features of inherited neurological conditions, including familial epilepsy, neuromuscular disorders, and movement disorders. Those conditions are not rare in Mali due to a high rate of consanguineous and intraethnic marriage. Mali also has a high birth rate, which creates a unique opportunity to conduct genetic and genomic studies, unlike



Dr. Aïssata S. Touré visits with staff members at the University Hospital of Dusseldorf.



developed countries.

I will continue to seek expertise from the neurology team in Dusseldorf for atypical cases. •

Dr. Aïssata S. Touré is a resident in clinical neurology and research assistant in neurogenetics from Bamako, Mali.



Dr. Aïssata S. Touré (second from right) enjoys some time outside of the hospital in Dusseldorf during her visit.

WORLD FEDERATION
OF NEUROLOGY

WORLD BRAIN DAY

Brain Health for All Ages

Impact Through Insight

An introduction to the Society for Equity Neuroscience (SEQUINS).

BY RAELE TAGGE, LILYANA AMEZCUA, AND BRUCE OVBIAGELE

Neurological conditions are now the most prominent cause of ill health and infirmity worldwide.¹ This sobering development occurs in a setting where the global burden of neurological disease is unevenly distributed, disproportionately impacting certain minority ethnic and racial backgrounds, as well as those from lower socioeconomic groups or residing in medically underserved regions. These neurological disparities are anticipated to get worse with time. Bending the neurological disparities curve successfully and sustainably will require a sense of urgency, focus, commitment, community, and rigor.²

Founded in 2024, the **Society for Equity Neuroscience** (SEQUINS) is dedicated to enhancing equitable neurological care and outcomes via research.³ SEQUINS aims to establish an enduring multidisciplinary academic community focused on advancing the emerging field of equity neuroscience. It also:

- explores the multifaceted basis for various neurological inequities and disparities
- tests promising interventions
- fosters the careers of equity neuroscientists across all stages
- partners with aligned organizations for universal impact.³

SEQUINS is led by a board comprised of a multidisciplinary, multisectoral, multinational, and multicultural group of seasoned scientists and leaders covering neurology, psychiatry, basic/translational



LILYANA AMEZCUA



BRUCE OVBIAGELE



RAELLE TAGGE

neuroscience, epidemiology, and health services research. With a mission to advance brain health equity through science, SEQUINS has a number of key goals. (See Table 1.)

On May 15, 2025, SEQUINS will hold its inaugural annual scientific meeting in Charleston, South Carolina. The meeting will be a one-day multidisciplinary forum, which will include state-of-the-art scientific lectures, early career presentations, early career development sessions, recognition of excellence in equity neuroscience (Hall of Fame) and mentoring of scientists (awards). There will also be celebrations of graduates from training programs, briefings by research funding agencies, and opportunities to network.

SEQUINS 2025 will offer a hybrid format with in-person and virtual options. In 2025, SEQUINS will also launch its own journal, *Equity Neuroscience* (EQN), published by Elsevier. It will be a peer-reviewed, open-access journal dedicated to publishing research that seeks to understand and address neurological inequities and disparities based on sex, race/ethnicity, geography, socioeconomic

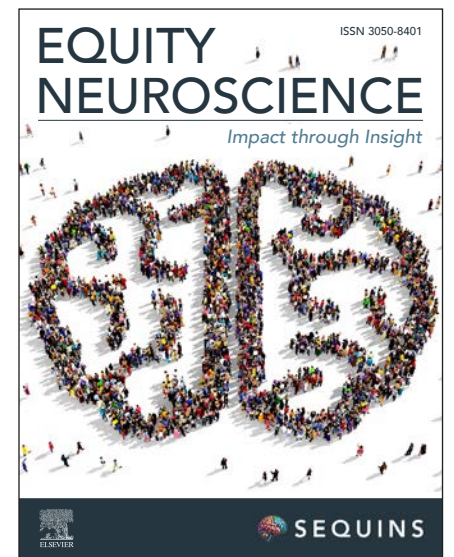
status, and other social determinants of health. SEQUINS also plans to establish a podcast titled “No Brain Behind” which will interview key scientists, leaders, and policy makers.

By seeking to narrow the differences

between the world’s brain health haves and have-nots, SEQUINS looks forward to being a part of the solution to improving brain health globally.^{4,5} Clearly, SEQUINS cannot do this alone. As such, we are already members of the World Health Organization Civil Society Commission, International Brain Research Organization, and World Hypertension League.

SEQUINS is also establishing partnerships with the International Science Council, American Neurological Association, American Brain Foundation, Society for Neuroscience, Association of University Professors of Neurology, Clinical Neurological Society of America, National Institute of Neurological Disorders and Stroke, and Global Brain Health Institute. We plan to identify and partner with more organizations and institutions to help deliver high-quality scientific evidence to guide the implementation and dissemination of communications, policies, and programs toward the elimination of brain health inequities.

To learn more about SEQUINS and how you can contribute to the mission of promoting brain health equity through science, visit [the SEQUINS website](#) or



contact them at info@s-equi-ns.org. Together, we can create a future where optimal neurological health is accessible to and equitable for all. •

Raelle Tagge is chief program officer of the Society for Equity Neuroscience as well as a research manager at the Northern California Institute for Research and Education. **Lilyana Amezcua** is vice president of the Society for Equity Neuroscience and associate professor of neurology and division chief for neuroimmunology and multiple sclerosis at the University of Southern California. **Bruce Ovbiagele** is president of the Society for Equity Neuroscience as well as professor of neurology and associate dean at the University of California, San Francisco.

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Editors' Note: SEQUINS is a newly founded U.S.-based society. It has no formal links with the WFN.

Table 1. Key goals of SEQUINS.

GOAL	DESCRIPTION
Support the Equity Neuroscience Community	SEQUINS will establish an enduring and vibrant network of equity neuroscientists connected through a variety of channels, including e-newsletters, society meetings, awarding grants, recognizing excellence and several scientific activities.
Establish Partnerships With Key Stakeholders	SEQUINS will actively seek to build alliances with organizations and groups invested in neurological health equity, ensuring a unified approach to addressing health disparities and inequities.
Prioritize and Address Key Questions	By focusing on critical inquiries that will significantly advance brain health equity outcomes, SEQUINS will drive responsive research and encourage actionable solutions.
Provide High-Quality Programs	<ul style="list-style-type: none"> • SEQUINS will hold an annual scientific meeting designed to inspire the community, enhance knowledge, equip early career investigators, and facilitate research collaborations. • SEQUINS will hold quarterly webinars to highlight advances in equity neuroscience research and feature early career scholar work. • SEQUINS will launch its own scientific journal. • SEQUINS will create a mentoring program.
Ensure Diversity Within the Community	SEQUINS is committed to growing and cultivating a diverse and representative community of equity neuroscientists, recognizing that varied perspectives are essential to understanding and addressing neurological inequities around the world.
Enhance Public Engagement	<ul style="list-style-type: none"> • SEQUINS will emphasize the implementation of equity neuroscience in real-world contexts, working to educate, engage, and enlist the lay public, media, and policy makers about the importance of brain health equity research and its applications. • SEQUINS will issue scientific policy statements around equity neuroscience. • SEQUINS will hold scientific fairs and community outreach events.

HISTORY

Headache and Migraine in Shakespeare's Work

Mentions from the Bard raise questions about treatment during his time.

BY PETER J. KOEHLER

While ago, I was asked to collaborate on a podcast about migraine in William Shakespeare's time. Although I had written about the history of migraine not long ago, it inspired me to delve deeper into this particular period. How was migraine defined or diagnosed, and what treatments were available? There are a number of articles and chapters in medical literature about neurology, headaches in particular, in the works of Shakespeare.^{1,2,3}

Shakespeare and His Son-in-Law

English playwright and poet William Shakespeare (1564-1616, see Figure 1) was born in Stratford-upon-Avon and is known as the "Bard of Avon." He wrote a vast body of work that includes no fewer than 39 plays and 154 sonnets. He married 26-year-old Anne Hathaway (1556-1623) in 1582, when he was 18 years old. They had three children, of whom the oldest, Susanna (1583-1649) married a local physician named John Hall (1575-1635). Hall studied at Queen's College Cambridge (BA 1593, MA 1597). However, he had no English medical degree and probably received medical training on the continent. This was possibly in France, as he was "a traveler acquainted with the French tongue."

Hall established himself in Stratford around 1600 and is often claimed to be the source of medical information in Shakespeare's writings, although about half of his plays were written before Hall came to Stratford. Shakespeare wrote about medical issues before meeting Hall, but he did not write about physicians. This changed after 1605. Neurologist John M.S. Pearce wondered, "Do these, taken together, represent an affectionate and admiring sketch of his son-in-law, John Hall?"⁴

Charcot's Interest in Shakespeare

There is another interesting relationship between Shakespeare and neurology. It is well known that Jean-Martin Charcot (1825-1893, see Figure 2) was particularly interested in Shakespeare's work. (This year, we are celebrating the Charcot bicentennial with a special meeting of the International Society for the History of Neurology (ISHN) in Paris and with a special issue of the *Journal of the History of the Neurosciences*.)⁵

Quotes from the famous poet are referenced in several places, including in the book *Charcot: Constructing Neurology* and the chapter "The Influence of Shakespeare on Charcot's Neurological Teaching."^{5,6} In the chapter, we learn about Charcot's Anglophilia and his

"incorporation of Shakespearean citations into his neurological teaching [that] served several purposes." Charcot's biographer Christopher Goetz, the author of the chapter, writes: "Occasionally, he drew on Shakespeare's words to illustrate a specific neurological observation. More often, he lauded Shakespeare as an exemplary observer of human behavior and emphasized the clinical importance of careful and dispassionate documentation." Furthermore, Charcot "used Shakespeare's words to communicate philosophical principles related to the field of medicine and the role the physician."⁶

An interesting aspect mentioned by Goetz is that Charcot appreciated "the particular mixture of the real and the unreal" in Shakespeare's *Macbeth*. This was related to Charcot's study of hysterics from 1878 onward and "the spectacular behaviors of the hysterics who crowded his wards, and whose symptoms were often mixtures of real and elaborated disease." These patients "often unwittingly mimicked the witches and spirits of the Shakespearean stage."⁶ We also find information on a tableau of *Macbeth* rendered by Charcot's children Jeanne and Jean, as well as his students.⁵

Headache in *Othello* and Migraine in *Romeo and Juliet*

Among Shakespeare's best known tragedies are *Hamlet*, *King Lear*, *Macbeth*, *Othello*, and *Romeo and Juliet*. In the latter two plays, headache and migraine are mentioned. In *The Tragedy of Othello, the Moor of Venice* (Act III, scene 3), the protagonist, who is falsely manipulated with insinuations that his wife is unfaithful to him, says: "I have a pain upon my forehead here," upon which his wife Desdemona answers, "Faith, that's with watching; 'twill away again: Let me but bind it hard, within this hour it will be well."

In Act II, scene 5 of *The Tragedy of Romeo and Juliet*, the nurse, Juliet's personal attendant and confidante, who secretly contacted Romeo, says, "Lord, how my head aches! What a head have I! It beats as it would fall in 20 pieces."

Philip Barrough's *Method of Physic*

If we want to understand the knowledge about headaches and migraines at that time, we must realize that physicians were still thinking in terms of the humoral medicine of antiquity (Galenic medicine). Frequent references were made to Galen (129-c. 216) and Hippocrates (c. 460-c. 370 BCE). Health and disease depended on the proper balance of body fluids, including blood, phlegm, and yellow and black bile.

A good example from the period of Shakespeare would be the first edition

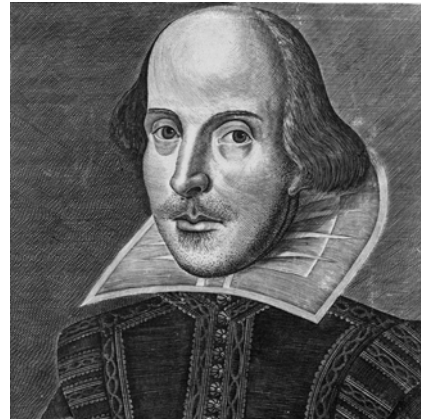


Figure 1. William Shakespeare (1564-1616), engraving by Martin Droeshout (public domain).

of *Method of Physic* (1583, see Figure 3), by London surgeon and physician Philip Barrough, who wrote in terms of Galenic medicine. He obtained his license to practice surgery from the University of Cambridge, and in 1572, he was licensed to practice physic. He probably practiced in London.⁷ His book was dedicated to "Lord and Master the Lord Burgley, High Treasurer of England," thereby pointing to William Cecil, first Baron of Burgley (1520-1598).

Looking at the 1624 sixth edition, the book follows the usual sequence *a capite ad calcem* (from head to heel) and starts with diseases of the head. The book seems to have been popular as it reached at least seven editions, with the last being published in 1652. The first 12 chapters deal with headache, and Chapter 13 deals with migraine. (See Figure 4.) The chapters on headache are typical of the period, describing headache caused by heat, cold, dryness or moistness, blood, cholera, and phlegm, but also by drunkenness. After Chapter 13, some other "neurological" conditions are described, including frenzy, lethargy, "losse of memorie," "carus or subeth" [deep sleep], paralysis, apoplexy, cramp, madness, melancholy, trembling, and shaking.⁸ These "neurological" subjects comprise 29 chapters in 48 pages.

Barrough's book is said to be the first medical book in English. Indeed, at the time, many medical books were still published in Latin. For instance, the book *De cerebri morbis* (1549) by Jason Pratensis (1486-1558) is in Latin. In this book, the first seven chapters are on headache with titles similar to Barrough's book, and Chapter 8 is on "hemicrania."

Barrough first gave general information on headache in his 1583 book on medicine. "Cephalgia is nothing else but a laborious and painfull sense, and feeling newly begonne in the whole head, through some great mutation thereof, this word newly is added to make it differ from *Cephalaea*, which is an old



Figure 2. Jean-Martin Charcot (1825-1893), whose bicentennial of birth is being celebrated this year. (© The National Library of Medicine believes this item to be in the public domain; see [Jean Martin Charcot] - Digital Collections - National Library of Medicine.)

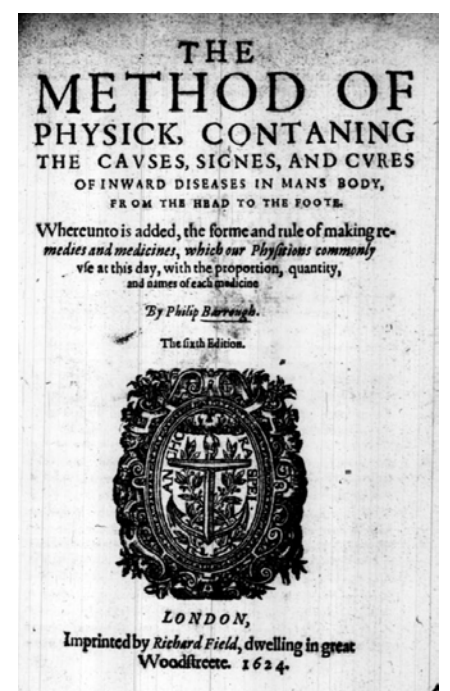


Figure 3. Title page of Philip Barrough's *Method of Physic* (sixth edition of 1624).

paine that hath long continued: and the whole head is added to make it differ from *Hemicrania*, which occupieth but the one halfe of the head."

This in fact is not much different from the classification given by Aretaeus of Cappadocia (second century).^{9,10} For migraine, Barrough used the terms *hemicrania*, in English *migrime*. "Hemicrania is a painfull evill remaining in the one halfe of the head, either on the right halfe or on the left,

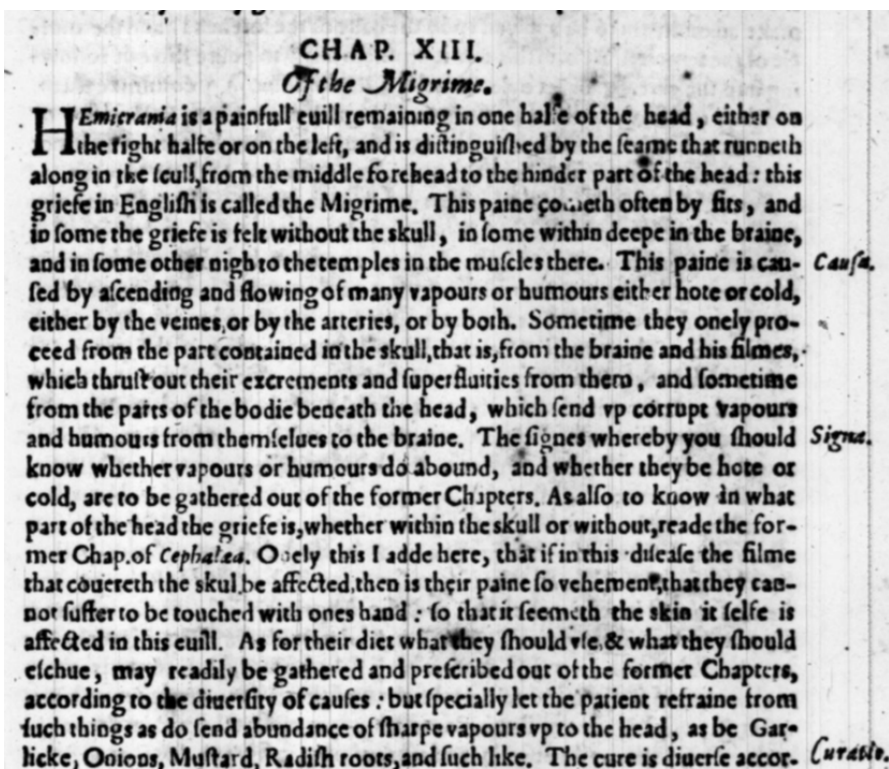


Figure 4. Chapter 13 on migraine of Philip Barrough's *Method of Physic* (sixth edition of 1624).¹²

HISTORY

continued from page 7

and is distinguished by the seame that runneth along in the skull, from the midde forehead to the hinder parte of the head, this grieffe in Englishe is called the Migrime. This paine cometh often by fittes, and in some the grieffe is felt without the skull, in some within deepe in the braine, and in some other nigh to the temples in the muscles ther.”

In his definition, it was localized on one side of the head. He believed this was due to the falx cerebri. He described symptoms, including pain on one side of

the head, often periodic (fits), felt on the skull or deep in the brain, sometimes the temples. As for the pathophysiology, he wrote in terms of vapors rising, hot or cold, and if the meninges are involved, it can be very painful, with the patient barely able to touch the skin.

As for the treatment, he wrote, “The patient should refrain from such things as do send abundance of sharp vapors up to the head (garlicke, oynions, mustard, raddishe rootes, and such like).” The physician was expected to cure the migraine, and first consider diligently whether the patient needed bloodletting or purging. This was followed by local and external remedies depending on whether

there was an abundance of cold or hot humors. The patient should rub either their own fingers or a linen cloth over the half of the forehead that is hurt, and specially over the muscles of the temples, until it is red and hot.

Of course, Shakespeare did not give much information about the symptoms of his characters’ headaches. Although it is hazardous to make a diagnosis based on so little information from the 16th century, the “pain in the forehead” of Othello, could have been a tension-type headache. The description of the headache — [the head] “beats as it would fall in 20 pieces” — of Juliet’s nurse suggests migraine. Shakespeare also gave no information about treatment, other than “Let me but bind it hard.” And the information he gave would not have required reading medical writings. •

Peter J. Koehler, PhD, is co-editor of the *Journal of the History of the Neurosciences*. He has won several awards, including the Lawrence C. McHenry Award of the AAN and the Lifetime Achievement Award for the International Society of the History of the Neurosciences. He is currently affiliated with the University of Maastricht in the Netherlands. His recent books focus on art history (*The Stone of Madness. Art and History*) and on the enlightened naturalist Philippe Fermin (1730-1813).

* Information on the ISHN Charcot bicentennial (1825-2025) meeting in Paris can be found on the [ISHN home page](#) (including information about ISHN membership) and in the special issue on Charcot of the associated *Journal of the History of the Neurosciences*, which is not only the official journal of the ISHN, but also of the World Federation of Neurology (WFN) History of the Neurosciences Specialty Group.

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RECOGNITIONS

PROF. RAAD SHAKIR APPOINTED JNC PRESIDENT

Prof. Raad Shakir, past president of the WFN, has been appointed president of the Joint Neurosciences Council (JNC) UK, effective Jan. 1, 2025. The JNC is the umbrella organization for 18 neurosciences specialty associations in the UK, including neurology, neurosurgery, psychiatry, neurophysiology, neuroradiology, neuropsychology, and neuropathology. It also includes patient organizations, such as

Dementia UK, Stroke UK, and Epilepsy, among others. The JNC UK is an independent society, not associated with the WFN.

“All this would not have been possible if it was not for the experience and work for the WFN,” Prof. Shakir said.

The WFN congratulates Prof. Shakir on this important appointment. •



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PRESIDENT'S COLUMN

continued from page 3

The WFN Election

At the next Council of Delegates (COD) meeting in Seoul, the WFN election results will be presented. The election this year will be for the position of the president (presently Prof. Wolfgang Grisold), vice president (presently Guy Rouleau), and one trustee (a position currently held by Prof. Chandrashekhar Meshram).

Of the three positions up for election this year, only Prof. Meshram is re-eligible for election. This is important, as the tasks of the WFN are many — such as managing trainees and planning the congress — and range over multiple years. As such, competent leadership being aware of these elements is needed. The delegates have supported the move by the trustees to change the bylaws and ask the newly elected presidents to be available for one year before their office, serving as

president-elect, and to keep the past-president for one year as an adviser to ensure a smooth transition.

Following the Seoul congress, Cape Town, South Africa, will host the next World Congress of Neurology in 2027. During a visit to the Training Centers, we walked through the meeting site. It is impressive, well located, surrounded by hotels, and is in a safe area of Cape Town.

Europe will be the site for the World Congress of Neurology in 2029. Seven countries have expressed interest, and they will be evaluated by the permanent Congress Committee and the PCO for technical feasibility, access, and location. Following this, we will develop a short list of candidate countries, and the short-listed sites will be visited by the WFN Visitation Committee.

Our specialty group on neuromuscular disease, the ICNMD, had a successful 2024 congress in Perth, Australia. Another congress will be held in 2026 in Florence, Italy. The ICNMD held a successful virtual

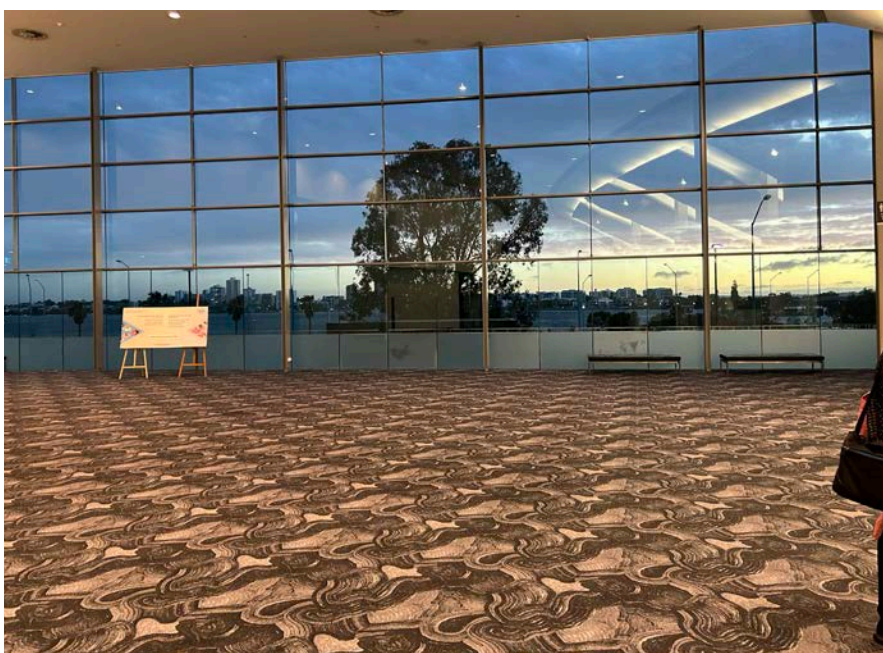
meeting in 2023 providing an update in neuromuscular disease. This will be repeated in 2025. It is likely that from 2026 onward, the ICNMD will be held annually, and great care will be taken to preserve the important rotation

around the world as needed for any WFN congress.

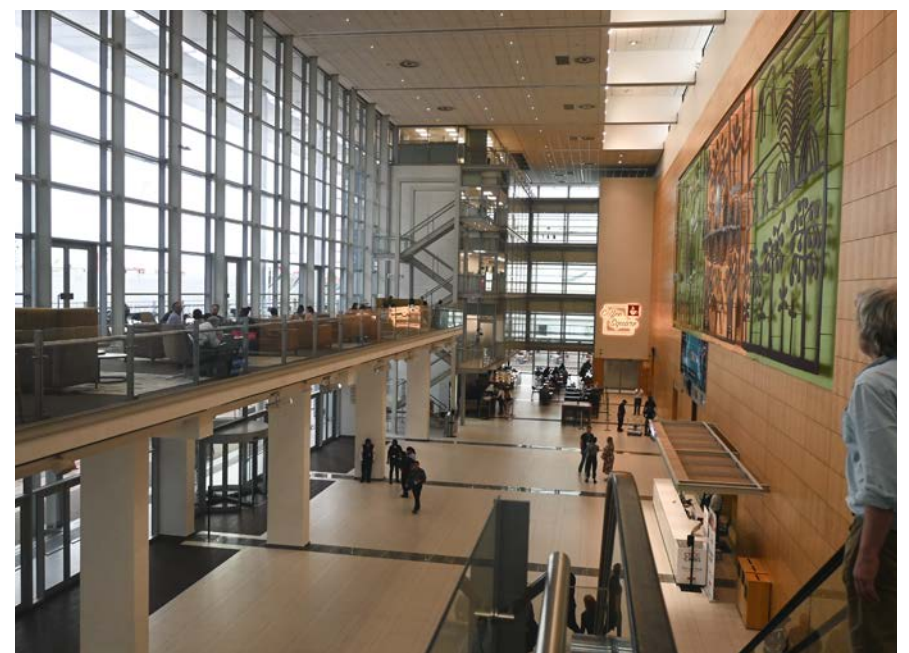
In conclusion, following a successful 2024, we will continue our efforts in 2025. We look forward to meeting at the WCN 2025 in Seoul. •



Prof. Steven Lewis inspects the COEX Center plenary hall in Seoul, South Korea



The Perth Convention and Exhibition Centre, site of the 2024 ICNMD congress.



The site of the World Congress of Neurology 2027 will be the Cape Town International Convention Center. A view of the main entrance hall.