Brain Health Around the World

Prof. Grisold reviews the impact of the Global Burden of Disease (GBD) update, brain health, and World Brain Day.

The Global Burden of Disease
The release of the new version of the GBD will have a strong impact on the neurological community (Collaborators 2024). It enlarges the spectrum of neurological conditions from 15 to 37, and includes other disease entities and disciplines, which are affected by neurological symptoms and often disability. See an overview in these infographics.

I was privileged to add a comment to the new release of the GBD (Grisold 2024).

One example of many includes neonatal birth injury, where the neurological sequelae are not an immediate effect for neurology, but are inevitable during the life course of the individual. This example and several others will expand the need for neurological structures and services, and come in a timely manner to align with the efforts of the WHO Brain Health Unit in regard to Brain Health and the Intersectoral Global Action Plan (IGAP). The IGAP and the Toolkit are advancing under the leadership of the WHO, and its overall effect on all aspects of neurology will be tremendous (Grisold et al. 2023).

By choosing the words “all aspects” of neurology, I mean that not only the scientific field of neurology and neuroscience, but all concerned, such as persons with lived experiences and health care professionals. Importantly, the public and the policymakers are also important stakeholders.

Brain Health
The process of inserting “brain health” in the agenda of neurological societies, and in the further process on political agendas, is important. In addition to the European EAN efforts and the efforts of the AAN, brain health has been put on the political agendas of some countries, such as Norway, Switzerland, and recently Italy. These advances help to promote the concept of brain health, and once in a political agenda, it can be assumed that...

The Use of Telemedicine Devices and Telehealth in Neuromuscular Disease

The expansion of telemedicine use in NMDs and development of clinically relevant but easy-to-use remote monitoring systems has potential to improve patient access to expert care.

Patients with neuromuscular disorders (NMDs) have diverse and complex care requirements, typically served by highly specialized centers. However, these may be geographically remote, and the COVID-19 pandemic underlined the system’s fragility by leading to widespread suspension of diagnostic, support, and rehabilitative services. Cancelled routine visits and limited outreach resulted in morbidity and even deaths. The demand for telehealth and remote care to help resolve this situation increased. This article describes the concept and current options using telemedicine in the care of people with NMDs.

Telemedicine in NMD at the Onset of the COVID-19 Pandemic
Prior to COVID-19, telemedicine was...
World Brain Day 2024: Promoting Brain Health and Prevention Globally

Neurological disorders represent a significant global health concern, impacting individuals and societies across the globe. With billions of people affected and millions of lives lost each year, the burden of neurological disorders cannot be overstated. Despite advances in medical science, disparities in access to quality care persist, underscoring the urgent need for comprehensive prevention strategies.

World Brain Day (WBD), an initiative launched by the World Federation of Neurology (WFN) in 2014, serves as a platform to raise awareness and advocate for improved neurological care worldwide. In collaboration with six global regions, WBD 2024 focuses on Brain Health and Prevention, aligning with the global agenda to combat disability and promote well-being.

The latest findings from the Global Burden of Disease Study highlight the preventable nature of many neurological conditions, emphasizing the importance of targeted interventions. Stroke, Alzheimer’s disease, and other dementias are among the most extensively studied conditions, with identifiable risk factors that offer opportunities for prevention.

Regional neurological societies, including the American Academy of Neurology, African Academy of Neurology, Asian and Oceanian Association of Neurology, European Academy of Neurology, Pan-American Federation of Neurological Societies, and Pan Arab Union of Neurological Societies, play a pivotal role in leading preventive efforts within their respective regions.

By disseminating educational materials and advocating for policy changes, these societies contribute to the global effort to promote brain health and prevent neurological disorders.

WBD 2024 represents a call to action for stakeholders across all sectors to prioritize brain health and prevention. Through advocacy, education, and community engagement, we can empower individuals and communities to adopt healthy lifestyles and reduce the burden of neurological disorders worldwide. By joining forces with regional neurological societies and leveraging the power of digital communication, we can amplify our message and effect positive change.

Together, let us work toward a future in which neurological disorders are preventable, and all individuals have access to the care and support they need to thrive.
the idea and concept will be developing, surpass attention and awareness, and result in practical advances. The implementation of brain health in the agenda of scientific societies is essential. The centerpiece is the adoption of brain health into the political agenda of a country.

After Switzerland, the most recent example of taking brain health into the political agenda is Italy, where on March 12, the Strategia Italian per la Salute del Cervello 2024-2031 was held in the Camera dei Deputati (Chamber of Deputies) in Rome, which is at the highest political level. It was orchestrated by the Italian Society of Neurology (SIN). The importance of brain health was acknowledged, and during the meeting several Italian societies involved in neurology at all levels participated. Orazio Schillaci, the Italian minister of health, gave an inaugural speech. From the international neurology community, Prof. Paul Boon from the EAN and I (from the WFN) were invited for short speeches of introduction on the importance of brain health. Prof. Matilda Leonardi advised us on the importance of brain health for Italy and was involved in the development of the event.

My address pointed out that the WFN is actively engaged in brain health and has devoted the recent World Brain Days (WBDs) to the topic of brain health. The upcoming WBD is on brain health and prevention, following the previous WBDs on brain health, and brain health and disability. I also emphasized that within brain health, the implementation of IGAP will need increased efforts and promotion as the spectrum of persons needing neurological care is likely to increase after the release of the new GBD.

The WFN wants to congratulate SIN and Italian politics for taking up and engaging in this important matter of brain health.

Education in Neurology

Education is one of the WFN’s core missions. We are happy to announce that the number of applications for WFN training sites, consisting of training centers and department visits, is increasing. In Africa, we currently have four training centers, and in Mexico, we have one training center.

In Africa, we have a full four-year training position in Senegal and Cape Town, and in Rabat, there is a four-year training position starting up, in addition to two neuromuscular fellowships. Since 2016, the ICNMD, a specialty group from the WFN, regularly sponsors one candidate for neuromuscular training in Africa each year from the Congress surplus. The first ICNMD virtual meeting in December was successful, and we look forward to the next ICNMD congress in Perth, Australia, which will have an exciting program concerning all aspects of neuromuscular disease.

Encouraged by our experience with the Virtual WCN 2021, the hybrid WCN in Montreal 2023, and our successful educational days with AFAN and AOAN, we will launch a two-day WFN Digital Neurology Updates (WNU) 2024 meeting. The WNU will be virtual, take place Sept 26-27, 2024, and will consist of plenary lectures regarding the most frequent neurological conditions, followed by a series of teaching courses in the afternoon. In between the scientific parts, we will also have industry-sponsored symposia. We hope this series of update lectures will be exciting and useful, and our outreach will be as intense as it was for the WCN 2023 in Montreal.

World Brain Day 2024

The theme for World Brain Day 2024 is “Brain Health and Prevention.” It will be organized by the WBD committee and the WFN regions, and will create an attractive program to emphasize and stress the importance of brain health worldwide and selectively emphasize prevention.

Prevention is a pillar of the IGAP, and prevention in non-communicable and infectious disease is a powerful tool. This tool will help to reduce the number of neurological diseases as well as reduce the sequelae such as reduced quality of life and disability.

Visit the WFN website to see the progress of development. There will be a toolbox to download material, which can be adapted and used for local promotion. We encourage all readers to use this incentive locally and celebrate WBD. We also welcome your reports from WBD celebrations, which will be potential candidates for publication in World Neurology.

Meet Us

The WFN had a booth at the meeting of the Austrian Society in Vienna and at the meeting of the American Academy of Neurology (AAN) in Denver this year.

We will have booths at the Japanese Society of Neurology in Tokyo, and at the meeting of the European Academy of Neurology (EAN) in Helsinki. If you visit any of these congresses, please visit our booth. You can also make an appointment for a meeting with our office (carlos@wfneurology.org).

References


Preventing Neurological Disorders: Are We Being Far-Sighted Enough?

If we do not slow the pandemic of neurological disorders, we face an even greater pandemic driven by aging populations – but still too few health professionals deal in prevention.

The health professionals are trained to deal with diseases. Few engage in prevention, which remains underestimated, underfunded, and underused, but is pivotal in stemming the rising tide of neurological disorders. For dementia, billions spent on finding a drug to counter cognitive deterioration have yielded two drugs of efficacy still to be fully determined and unquestionable complications and high costs. Moreover, an effective drug to slow cognitive deterioration in symptomatic patients would only address the symptomatic late phase of the disease. It would do nothing to prevent increasing waves of cognitive impairment, driven by aging populations compounded by an open-sciences crisis of upward aging trends and downward birth rates.

In 1960, global life expectancy was 51 years; now it is 72 years. The global fertility rate was five births per woman; now it is 2.4. In Japan’s super-aged and declining birth rate society, life expectancy has changed from 68 years to 85 years, while the total fertility rate has declined from 2 to 1.3 per woman. This poses mounting social, economic, and health challenges.

One approach is keeping older adults healthy and working past their current retirement ages. Another is educating people to optimize their cerebral, mental, and social health so that they can contribute to the increasingly knowledge-based economy. Integral brain health is key to health, productivity, and well-being throughout life.

Promoting brain health includes preventing risk factors and enhancing protective factors. Neurological disorders inflict the largest proportion of disability adjusted life years. Stroke and dementia account for 62%. Stroke, ischemic heart disease, and most dementias share modifiable risks and protective factors, and also to a lesser degree, with Parkinson’s disease and bipolar disorders.

Risk factors differ in other neurological disorders, but promoting integral brain health might mitigate their consequences and prevent complications from the triple threat of stroke, ischemic heart disease, and dementia.

Integrating and scaling up prevention by promoting integral brain health through multiple approaches can promise a quantifiable difference. The World Health Organization is acting at the global level, and several countries have national brain health plans that must be complemented by community initiatives that can more easily integrate population-focused and individual approaches.

Integral Brain Health: An Urgent Action Plan

An abyss exists between what is done and what needs to be done. An abyss cannot be crossed in small steps, so we need an Integral Brain Health Urgent Action Plan to:

• Consider integral brain health – cerebral, mental, and social – in all individual, community, and governmental decisions.
• Create a compendium of actionable knowledge on what is known and what needs to be and can be known by experts and users, and strategies of motivation and implementation.
• Fund new approaches to promoting and scaling up integral brain health in different-sized populations, with variable measures and reflecting different cultures.
• Empower existing leaders, organizations, and communities to implement their highest impact measures based on cost effectiveness.
• Create a new integral brain culture through public campaigns featuring highly accomplished brain users, such as sports champions, innovators, artists, writers, media personalities, scientists, and scholars.

One slogan could be “Integral brain health now.” The campaign could promote a basic ABC of “Activity and rest, Balanced diet, and Connecting with others” to help people think better, feel better, and perform better. It would emphasize the simplest, most effective individual actions. For example, walking 4,000 steps a day decreases mortality and provides significant health benefits. Doing it with someone else adds the benefit of socializing and doubles the chance that the person will continue to walk. Walking in greenery adds yet another benefit – long recognized in Japan as shinrin-yoku (forest bathing).

But how can health professionals expand their horizons when they are trained to focus on individual patients? The pandemic taught acute care doctors the importance of prevention so that they would not be overwhelmed by cases. It also fostered unprecedented collaboration between public health officers and acute care professionals. Similar cooperation is needed to prevent brain disorders before the painful lessons of the pandemic fade.

Integral brain health concerns everyone. Small efforts by many produce big changes overall. If about 10% of the population adopts a new view, change follows rapidly. The pandemic is still transforming lifestyles, work, and education – now is a propitious time to introduce fundamental changes.

Exhausted by the pandemic and crises, we may ask if this is the best time to ramp up prevention. But there seldom is an ideal time to innovate. If we do not begin to slow the pandemic of neurological disorders, we face an even greater, more relentless pandemic driven by aging populations. Infectious pandemics subside, aging epidemics do not. If we do not act now, then when? If not us, then who? It is for us, and it is now that we need to act.

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Titsingh (1684-1776), the
ship’s surgeon who wrote this in
1730, had observed this picture
more often. See Figure 2. He not only felt
an impression, but soon after a swelling
would start. The injured persons often
continued vomiting from time to time. He
felt it was important to write this down
because surgeons often did not see these
patients until after this episode was over.
The patient would be put in bed, the hair
should be shaved, and “the hairy scalp
was to be stewed with wool rags boiled in
wine containing warming herbs.” Others
would use brandy for this purpose.

Bed Rest
Bed rest should be continued for several
days, in combination with “a cooling
lifestyle.” He compared the case with
a squire, identified as JVK, who had
fallen from a moving carriage and was
apparently dead, but recovered after a
bloodletting. He had a big bump on the
forehead and had to keep to bed for a
month. For the first 14 days, he swooned
an impression, but soon often a swelling
more often. See Figure 2. He not only felt
of his head, where Titsingh could feel the
wound was bleeding unusually heavily and
damaged the brain.”

Drunk

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Sailor

Another case he described was of a
drunk sailor who fell in the cable hole
with his head on the tip of a grapnel. He
had a large wound on the side of the back
of his head, where Titsingh could feel the
injury of the skull with his finger. The
wound was bleeding unusually heavily and
prevented him from continuing. He was
unable to stop the bleeding, and the man
died the same evening. The next morning,
his colleague dissected the skull and
diagnosed a fracture with impression,
as well as bone chips that reached to the
meninges. Moreover, he suspected that
the transverse sinus was damaged, “which
we did not investigate, but let him rest
with the dead.”

Son of Ship’s Surgeon
Abraham Titsingh was the son of an
Amsterdam ship’s surgeon who worked
for the Dutch fleet. The latter died during
the Nine Year War (1688-1697) against
the French, when Abraham was only 10
years old. After his father’s death, he was
taught the healing arts by a Swedish ship’s
surgeon, who was an excellent teacher.
Abraham’s two brothers Gerard and Isaak
also became surgeons in Amsterdam.
At least one of them, Isaak, was partly
trained by Abraham. In 1702, Abraham
was promoted to second ship’s surgeon.  
He was a rough ship’s lump and had
little respect for his superiors, but was
beloved among the ship’s people.

Spina Bifida
Titsingh was critical of guild exams
and was hated by his fellow surgeons. He
believed practice was more important
than theory, and that experience at
the bedside was “the safest and surest
way.” In particular, he criticized
theorists. “The reflective pedants misled
the young through unproven feelings.
They wrote medicinal novels, emblems
with sharp acid, salt, oily grease, and
other blanket particles.” However, he
published several books himself,
including Heelkundige verhandelingen over
tegennatuurlijke splijtinge der ruggegraad
Surgical Treatise on the Unnatural Splitting
of the Spine. See Figure 4. The subtitle
was “Gescreven aan den uitmuntende
chirurgyn Hendrik Ullohoen” (Written to
us HISTORY page 7

Figure 1. Frontispice of Titsingh’s book De
derzendenke heelkundt der Amsterdammers uit hunne
eigen Handvesten, 1730.

Figure 2. Portrait of Abraham Titsingh, by Jacob Houbraken, after Jan Maurits
Quinkhard. See Figure 3. (Painting by the painter Jan Maurits Quinkhard
(1688-1772). See Figure 3.)

Figure 3. Overlords of the surgeon’s guild of Amsterdam (1732) with Titsingh on the far right,
made by Jan Mauritius Quinkhard, oil on canvas, 176.5 x 273 cm, Amsterdam Museum (object
number SA 454; public domain).
In 1750, Titsingh published *Diana, ontdekkende het geheim der dwazen, die zich vroedmeesters noemen* ([Diana: Discovering the Secret of Fools Who Call Themselves Midwives], in which he criticized the attitude of some midwives who were interested in money, rather than a humane and considerate manner to assist and help the woman in childbirth.10 In mythology, Diana was not only the goddess of hunting, but also of chastity and pregnant women.

His last book was *Geneeskunst der Heelmeesters tot dienst der Zeevaart* ([Medicine of Surgeons to the Service of Seafaring]). On the title page, he mentioned that he was “surgeon of the country’s fleet.” In this book, one finds some reports from ship’s surgeons about various diseases treated by them on their voyages, both on board and on land, in foreign places. He wrote on their medical treatment, about which he widely communicates his reflections, remarks, and clarifications.

**Not Only Surgical Cases**

Ship’s surgeons did not only treat surgical cases. The surgeon’s chest they brought on board contained instruments as well as medicines. The contents of the ship’s pharmacy were subject to precise regulations. The Dutch United East India Company made a list of no less than 144 substances in 1704.

Before each voyage, the chest was subjected to a careful inspection in front of the ship’s surgeon by a physician and surgeons appointed for that purpose.9 10 Ship’s journals from the late 17th and early 18th century show that scurvy was the leading cause of death during longer outward voyages to the Cape of Good Hope, in particular if changes in weather and wind caused delays. See Figure 5. As can be expected, there was a relation with the duration of the voyage. None of the voyages with high scurvy mortality during that period lasted less than 19 weeks.9 11 A Treatise of the Scary by James Lind (1716-1794), who had been employed by the Royal Navy between 1738 and 1748, appeared in 1753.9 However, the proposed treatment was not immediately adopted by all doctors and surgeons. The lack of a generally accepted theoretical explanation for his observations played an important role here.10

In his book *Harde Heelmeesters* ([Tough Surgeons]), physician Arnold E. Leutfink described the backgrounds of illness and death among 18th century sailors and soldiers, as well as the medical care of the ship’s surgeons, using ship’s journals as sources. Infectious diseases were common already upon leaving Europe. Respiratory diseases with coughing and rheumatic complaints were also common. Rain and storms sometimes led to the crew being constantly at work, wearing wet clothes, and often falling ill due to lack of sleep. And then, of course, there were the seasick soldiers.9 10-19

**Quarrelsome Person**

According to his biographer, the physician Jelle Banga (1786-1877), all of Titsingh’s writings have something unpleasant, something pugnacious, because of the repeated broad enumeration of his grievances, and something cumbersome because of the elaborate and embellished surgical considerations. The language is flat, uncivilized, and generally prickly and snappy. The style is confused, without coherence, broken up by all kinds of inappropriate ideas, idle thoughts, and short-tempered pranks, which according to his own confession he could not avoid writing. Banga believed it was due to the fact that he had not been properly educated in his early youth and only trained to follow his father’s example. For eight years, he worked as a ship surgeon with rough sailors, roaming the ocean. He was enterprising by nature, but he seems to have applied himself to his craft only with zeal. Only when he established himself as a surgeon in Amsterdam did he realize his flaws. In the exercise of his art, he showed himself to be a gentle and experienced surgeon.3 9 10-17

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This column highlights the WFN committees and specialty groups that raise awareness and carry information on the important contribution of these groups for the functioning of the WFN.

BY CHANDRASHEKHAR MESHRAM, SURAT TANPRAWATE, AND SEREFNUR OZTURK

The committees of the WFN contribute immensely to the functioning of the WFN. The chairs are appointed by the trustees. The present composition and membership can be seen on the WFN website.

The committees work on specific issues while the specialty groups focus on specific neurological conditions. Information about the Publication Committee and the history of Neurosciences Specialty Group was published in the last issue of World Neurology.

In this issue, Information about the e-Communications & e-Learning Committee and the Migrant Neurology Specialty Group is published. Dr. Surat Tanprawate, who is the chair of e-Communications & e-Learning Committee, which comes under the broad category of education, has summarized the information about this committee. Dr. Serefnur Ozturk, the chair of the Migrant Neurology Specialty Group, has provided the information about this group.

e-Communications & e-Learning Committee

The e-Communications & e-Learning Committee occupies a critical position in advancing neurology education and communication worldwide. Through strategic consolidation of three subcommittees and targeted efforts, the committee has become a driving force in streamlining activities to enhance visibility, disseminate knowledge, and foster collaboration across electronic media platforms. Initiatives such as website enhancements, social media management, and the establishment of an e-Learning Hub have significantly extended the WFN’s reach and influence within the neurology community. Past-Chair Walter Struhal spent a lot of effort to streamline this committee.

The official website of the WFN serves as a central repository for neurology professionals and the general public worldwide. It offers a comprehensive array of resources, including educational materials, networking opportunities, advocacy initiatives, information on WFN programs, and multilingual support. This platform facilitates collaboration and drives the advancement of neurological care across borders.

In today’s digital landscape, the role of an e-Communications Committee dedicated to managing social media cannot be overstated. In conjunction with website enhancements, the WFN has harnessed the potential of social media platforms such as X (previously Twitter), Facebook, and LinkedIn to broaden its reach and deepen engagement. This proactive approach has made the organization’s initiatives and resources more accessible to stakeholders worldwide.

At the heart of the committee’s mission lies the e-Learning Hub, conceived by Morris Freedman, a distinguished committee member. The e-Learning Hub serves as a centralized repository of high-quality educational activities, including rounds, seminars, webinars, master classes, conferences, and special lectures. Leveraging the internet’s capabilities, the hub ensures convenient access to educational resources for neurologists worldwide, irrespective of their career stage.

Through close collaboration with regional societies, the committee coordinates Educational Days and e-Learning events tailored to specific neurology subspecialties and regional contexts. A recent milestone in this collaborative effort is the fourth WFN-AFAN E-Learning Day, focusing on neuroepidemiology. This online event also offers on-demand videos for participants, ensuring accessibility and flexibility in learning.

World Brain Day 2024, scheduled for July 22, 2024, underscores the importance of brain health and prevention, spearheaded by WFN. The e-Communication Committee plays a pivotal role in raising awareness and fostering engagement through digital platforms. By leveraging these channels, the committee ensures global outreach and impact, amplifying the message of brain health and prevention to diverse audiences worldwide.

Through strategic initiatives, collaborative efforts, and innovative approaches, the committee continues to play a pivotal role in advancing neurological care and shaping the future of the field.

Migrant Neurology Specialty Group

Migration is a historically old and increasing social, economic, and by beyond that, public health problem. The Migrant Neurology Specialty Group was formed Dec. 18, 2018, in Marrakech, Morocco, during the 12th Maghreb Congress of Neurology. Its aim was to attract the attention of neurologists worldwide and health policymakers in the host countries, on the particularity of the neurological disorders in the migrant population. Most human migration is in search of better opportunities, reflecting the desire for an improved quality of life. The current international migration is a reflection of the world, resulting from the dynamics generated by changes in political, economic, and cultural and environmental climate-related structures. Refugees are at significantly higher risk of experiencing disability associated with neurological conditions. Services and care pathways, including access to quality emergency care, should be responsive to the needs of all people with neurological disorders, not least those who are already vulnerable, such as refugees.

Studies on the health of migrants show that migrants have more health problems than the hosting populations. They are more vulnerable to communicable diseases, but also to some non-communicable diseases, such as stroke, hypertension, diabetes mellitus, or obesity. The high prevalence of neurological diseases in low- and middle-income countries, where the majority of migrants are originating, a high frequency of diseases of the nervous system should be expected among migrants. However, the incidence, prevalence, and clinical presentation of neurological diseases may differ in migrant people depending on the epidemiology, geography, and genetic background of the native country.

Stroke is a major public health problem among migrants given the high prevalence of vascular risk factors such as hypertension, diabetes mellitus, obesity, and smoking. Dementia, multiple sclerosis, neuroinfectious diseases, and functional disorders are common and important problems among migrants. The WFN Migrant Neurology Specialty Group plans more meetings dedicated to other neurological diseases in migrant people, such as cognitive disorders in elderly migrants, epilepsy, neurogenetics, migraines and headaches, neuromuscular diseases, movement disorders, anxiety, and depression.

The group has a strong collaboration with WFN for refugees as “Brain Health for All on World Refugee Day” to ensure the equitable access to resources, treatment, and rehabilitation that is essential for brain health to all refugees. The interesting book “Neurology in Migrants and Refugees” book was published in 2021. The charter of the global alliance was adopted by the U.N. General Assembly on Dec. 19, 2018, and this constitutes real progress for the cause of migrant people. Past-Chairs Mustapha El Alaoui Faris and Antonio Federico made significant efforts to establish and streamline the activities of this group.

CHANDRASHEKHAR MESHRAM, SURAT TANPRAWATE, AND SEREFNUR OZTURK

Serefnur Ozturk is the chair of the Migrant Neurology e-Communications & e-Learning Committee. Dr. Surat Tanprawate is the chair of the WFN. Dr. Serefnur Ozturk is the chair of the Migrant Neurology Specialty Group.
mainly used to overcome geographical challenges in thinly populated or resource-poor regions, or for monitoring patients with impaired mobility at home. Small case series suggested efficacy and economic advantages by reducing hospitalization. Zamarion et al. demonstrated the long-term feasibility of telemonitoring with video consultations plus SpO2, BP, ECG, overnight oximetry in home-ventilated patients via a residential internet gateway with alarm system and monthly outreach nurse check-ups. Challenges included changes in the patient–carer relationship, and difficulty procuring individually adapted systems. COVID-19 forced a hasty rethink of this position. Guidon and Amato discussed neuromuscular telemedicine consultation by phone or videolink. They perceived high potential for follow-up in myopathy, myasthenia gravis (MG), and polyneuropathy when stable, or for management of pain; moderate utility for new or unstable neuromuscular disorders, but low utility where there were discrepant symptom findings, for second opinions, and for primary management of unstable patients. Face-to-face clinics remained mandatory where electrodiagnostic studies and muscle and nerve biopsies were urgently needed, and where the results would change management, as in new onset amyotrophic lateral sclerosis (ALS), MG, and immune-mediated neuropathy or myopathy.

New scores and protocols may mitigate these shortcomings: Garibaldi et al. developed functional scores for myopathies and neuropathies (the Myo-FRS and N-FRS), taking reference to older disease-specific scores such as the MG-ADL for myasthenia gravis, and the ALSFRS-R for amyotrophic lateral sclerosis. Ricardi et al. suggested a protocol for remote clinical testing in MG, featuring:

• Counting aloud test in one breath (CAT)
• Hoarseness test (voice change with high-pitched vocalization)
• Head up test (10s head flexion from supine)
• Swallowing test (3oz = 90ml water swallow)

Other approaches included the Veteran Affairs Neuropathy Scale, which Wilson et al. piloted in telemedicine clinics and teleswallowing, a remote swallow assessment. This work provides a toolkit to perform a detailed clinical assessment, remotely via videolink. Purely audio remote interviews are more limited. Significant technical challenges for remote clinics remain regarding the availability of monitoring devices, broadband speed, audio-visual quality, internet lagtime for timed tests (10m walk, Timed-up and Go-test), users’ technical expertise, and computer literacy. To improve this, protocols to perform a video NMD clinic

have been published. Other videoconferencing platforms have been evaluated, and video platforms are available in a number of commercial patient management systems. Overall, the use of telemedicine in NMDs increased during the COVID-19 pandemic, but telemonitoring was used considerably less. Telemonitoring found its first application in clinical trials to optimize remote clinical assessment, but also to improve trial recruitment and monitoring. Reliability and strong correlations between wearable physical activity monitors (sensor-based systems using activity watches or body-worn sensors, PAMs) and neuromuscular measures confirmed PAMs’ utility as outcome measures and in long-term monitoring. Mobility data can be gathered by PAMs, or by ambient measurement systems (AMS), which passively measures movement such as ambulation speed, rise-to-stand speed, and arm-raise speed when someone is in range of a sensor.

Remote monitoring of life-supporting technology, such as home mechanical ventilation (HMV), requires regular monitoring of physiological variables (SpO2, SpCO2, respiratory rate), by carers supported by specialist outreach, and requires a continuous data link to the monitoring center for analysis and troubleshooting. It can enable remote initiation of HMV and may reduce costs, and may help predict exacerbations, allow remote interventions and adjustments. Challenges about data security and privacy, caregiver involvement and acceptance, availability of data, and misconceptions around time needed, remain.

Mobile Phone-Based Clinical Assessment

Wearable monitors have the disadvantage that they are expensive pieces of advanced technology, and the proliferation of devices patients must wear to allow multimodal monitoring can be intrusive. This makes them both cumbersome as well as unsuitable for low-income health environments. Therefore, exploring the potential of a ubiquitous device, such as a smartphone to provide multimodal monitoring is attractive. Digital technologies are currently expanding rapidly, especially in the field of NMDs. They can reduce data collection burden and increase knowledge of real-life data. MG is an autoimmune neuromuscular disease characterized by very heterogeneous symptoms potentially associating ocular, bulbar, respiratory and skeletal muscles weakness and fatigability. In current practice, visits to the physician’s office are planned every three to six months. However, since patients might experience worsening symptoms outside of visits, clinicians must often rely on patient recollection during consultations, which present a recall and subjectivity bias that can compromise the estimation of disease status. In this context, it will be clinically relevant to allow patients to self-assess their symptoms and physicians to collect and analyze digital biomarkers for a closer monitoring.

As an example, an ongoing study (ME&MG™, NCT: 05564916) aims to validate a digital solution that runs on patients’ smartphones. It is intended to be used as an unsupervised digital self-assessment tool for the monitoring of muscle weakness, fatigability, and disability in patients living with MG. This application contains digital active tests for the assessment of ptosis, breathing, dysarthria, upper- and lower-limb weakness, treatment follow-up, and validated e-questionnaires related to daily activities, pain, fatigue, sleep, and depression. The objectives of this study are to validate the clinical performance of the unsupervised at-home self-assessment of symptoms on the patient’s smartphone with ME&MG™ compared to the standard in-clinic testing, including analytical performance as well as to evaluate the safety of the solution, its usability, and satisfaction. Eight sites in France and the United States will be involved in this study. A further study evaluating the device is ongoing in the U.S. and Canada (NCT05566964). Figure 1 demonstrates the remote clinical assessment enabled on smartphone using the ME&MG software.

Machine-Learning Models of Telemonitoring and AI-Based Analysis of Digital Biomarkers

Machine-learning (ML) and AI-based models can conceivably help establish objective, rapid, and more accurate interpretation of remote data acquired by telemedicine monitoring. Viutra et al. devised an objective measure for ALS disease severity based on voice samples and accelerometer measurements, correlated with ALS-FRS-R scores over a four-year period with an audio voice recording and Actigraph GT1X accelerometers on each limb. They also trained ML models to predict bulbar-related and limb-related ALSFRS-R scores.

Similar approaches were used to assess changes in an edaravone-treated patient sample. Wearables can produce an objective severity score. There have been several approaches to wearables for therapy studies, though robust validation is still awaited.

Conclusion

The expansion of telemedicine use in NMDs and development of clinically relevant but easy-to-use remote monitoring systems has potential to improve patient access to expert care, even in situations where direct face-to-face access is interrupted, as in the recent pandemic, or where scarce resources or geography prevents patient access to specialist care. Going forward, telemedicine might expand the availability of high-quality specialist care to patients in...
Embracing the Future of Neurology

The launch of World Federation of Neurology Digital Neurology Updates (WNU) 2024.

In an era where digital transformation is revolutionizing every aspect of our lives, the World Federation of Neurology (WFN) is proud to announce a significant leap forward in global medical education with the inaugural World Federation of Neurology Digital Neurology Updates (WNU 2024) - 2 day online event. Scheduled for Sept. 26-27, 2024, this event is a testament to our unwavering commitment to fostering global collaboration and education in the field of neurology.

A New Era for Global Neurology Education

The decision to host WNU 2024 as a fully online event was born out of WFN’s core goal: to overcome geographical, economic, and logistical limitations, thereby creating a more inclusive and far-reaching educational platform. This initiative allows neurologists, researchers, health care professionals, and interested parties from across the globe to come together in an interactive digital space. By doing so, WNU 2024 not only democratizes access to the latest neurological knowledge but also significantly reduces the environmental impact typically associated with traditional conferences, underscoring our dedication to sustainability.

A Rich Tapestry of Neurological Knowledge

WNU 2024 is poised to offer an enriching and diverse educational program. The agenda is meticulously designed to cater to the needs of both seasoned professionals and those in the early stages of their neurological careers. Participants can look forward to keynote lectures delivered by distinguished experts in the field, promising insightful discussions that are sure to inspire new ideas and propel the practice of neurology into new frontiers.

WNU 2024 demonstrates WFN’s adaptability and unwavering commitment to advancing neurological care and education across the globe, regardless of the obstacles we may encounter.

As we look forward to this exciting event, WFN extends its heartfelt gratitude to all those dedicated to the field of neurology. Your passion and commitment are the driving force behind our efforts. Join us for WNU 2024, Sept. 26-27, 2024, and be a part of an engaging, stimulating online gathering that promises not only to educate but also to inspire.

www.neurology.com
WFN Clinical Fellowship

Four weeks of learning at the university hospital in Giessen, Germany.

BY SALSABIL ABDULRAHIM MADY ABULAZAYEM

I completed my WFN clinical fellowship at the department of neurology at the University Hospital Giessen in Giessen, Germany, for a period of four weeks under the supervision of Prof. H. B. Huttner. I was welcomed by Dr. M. Jünemann. He showed me the department and introduced me to the entire team. I appreciate the warm and kind welcome. I always felt fully integrated into the department’s daily routine, which allowed me to participate in all of the available activities.

During my first week, I regularly attended the movement disorders clinic with Prof. Reuter, where I had the opportunity to evaluate patients with all types of movement disorders and to discuss the cases, the diagnostic work-up, and therapeutic options. I also had the opportunity to witness complex therapies not present back home, such as subcutaneous apomorphine infusion and deep brain stimulation.

In the second week, I attended the neurocritical unit with Prof. Schramm, Dr. Alhaj Omar and Dr. Khilan, where I had the opportunity to evaluate patients with acute neurological conditions such as Guillain-Barre Syndrome (GBS), acute stroke patients, and post-thrombectomy care, and their diagnostic work-up and management plans. I was truly impressed by the perfect care from all of the medical staff.

During my third and fourth weeks, I attended the stroke unit rounds where cases were assessed and discussed, usually patients presenting with acute ischemic stroke, acute hemorrhagic stroke, acute lower motor neuron lesions such as GBS or myositis, and meningitis.

I had the opportunity to attend an epilepsy clinic with Dr. Mück, an MS clinic, and discuss diagnostic work-up and therapeutic options in different patients. In addition, I had the opportunity to attend the weekly Journal Club during my month. Also, I attended daily morning staff rounds where clinical cases were presented and interactively discussed to reach a final diagnosis.

I was able to increase my knowledge base and to learn therapeutic and diagnostic approaches that I could use in my daily clinical practice thanks to this clinical fellowship.

To conclude, I would like to thank Prof. Huttner and his team, Dr. M. Jünemann, Prof. Reuter, Prof. Schramm, Dr. Alhaj Omar, Dr. Mück, Dr. Wolff, Dr. Ebert, Dr. Genau, and Dr. Khilan for all of their kindness. Of course, I would like to thank the World Federation of Neurology for granting me the opportunity to do this clinical fellowship and the German neurological Society for their wonderful ongoing help with the WFN Department visit program. I highly recommend it to young neurologists.

Salsabil Abdulrahim Mady Abulazayem is Lecturer of Neurology, Cairo University.

Election of One Trustee for the Council of Delegates Meeting 2024

Review the list of candidates for WFN trustee.

PROF. RAAD SHAKIR, CBE, FRCP

For the upcoming election of a trustee at the virtual Council of Delegates (COD) meeting in September, WFN’s Nomination Committee, chaired by Prof. Raad Shakir, has reviewed all applications and has the following recommendations (in alphabetical order):

• Fernando Cendes, Brazil
• Valery Feigin, New Zealand
• Miguel Osorno, Mexico
• Brian Sweeney, Ireland
• Barbara Tettehborhn, Switzerland
• Tissa Wijeratne, Sri Lanka

The statements of these individuals will be published in an upcoming issue of World Neurology, and will be available on the WFN website.

The voting process will be announced in due course, and will be accompanied with detailed instructions.

The deadline for nominations was March 15, 2024. Nominations made after this deadline are still possible. Additional nominees must be a member of a WFN member society and must present the supporting signatures of five or more authorized WFN delegates, a CV, and a letter of agreement to stand. This must be submitted to the Secretary General, c/o the WFN Headquarters at info@wfneurology.org no later than 30 days prior to the start of electronic voting. Deadline for additional nominations will be Friday, July 26, 2024. Electronic voting will occur over three weeks starting Aug. 26, 2024.

Prof. Raad Shakir, CBE, FRCP, is chair of the WFN Nomination Committee, and a past president of the WFN.
World Brain Day 2023 in India

Unique activities enhanced World Brain Day in India.

World Brain Day 2023 was celebrated with great enthusiasm and commitment in India by the Indian Academy of Neurology. The campaign extended over several days. The 2023 theme was Brain Health and Disability. Leave No One Behind, and generated a lot of interest. The activities were focused toward increasing awareness among common people and students about brain health and disability. Chandrashekhar Meshram issued a press release.

This year, we at the Indian Academy of Neurology changed the approach and focused on reaching a few hundred thousand people through the most popular TV channel in the country. The activity was in the form of panel discussions on brain health and disability. WFN President Prof. Wolfgang Grisold was one of the panelists. Other panelists were IAN President Dr. Gagandeep Singh, WFN Trustee Dr. Chandrashekhar Meshram, IAN Past President Dr. Nirmal Surya, IAN Secretary Dr. U. Meshram, IAN Treasurer Dr. Lakshmi Narsimhan.

The panelists discussed the importance of World Brain Day, dementia and disability, epilepsy, stroke and disability, and the role of rehabilitation in disability. People could watch the telecast twice on July 22. The session is also available on YouTube.

Articles were published in newspapers to educate people about brain health and disability, the importance of exercise for brain health, information about Guillain-Barre Syndrome and its outbreak in Peru, stroke and disability, and brain health as a human right.

Walk for Your Brain was organized and held July 23 in Nagpur. People from various walks of life participated in the activity. The event was led off by Ravindra Thakare, tribal commissioner. People carried placards that displayed messages such as “Our brain, our future.” “It is your brain, use it or lose it.” “Proper diet for healthy brain.” “Epilepsy is treatable, don’t hide it.” “Clean city, healthy brain.” “Exercise, diet, and sleep. Three pillars of brain health,” and “Avoid air pollution for a healthy brain.” Chandrashekhar Meshram explained the importance of World Brain Day and provided tips for preserving brain health and preventing neurological diseases.

The Indian Federation of Rehabilitation (IFNR) conducted several activities on World Brain Day. Dr. Nirmal Surya, president of IFNR, presented on family- and community-based rehabilitation in which he emphasized the role of family participation in delivering rehabilitation in developing countries. He said this model would be a way forward in providing affordable rehabilitation for all in developing countries. Dr. Abhishek Srivastava, secretary and director of the IFNR, explained prevention and rehabilitation of poliomyelitis and how we win with community-based rehabilitation. The talk was elaborate on the various rehabilitative aspects that were undertaken to uplift the daily living of patients with poliomyelitis.

IFNR organized an awareness drive with a video content, in which participants submitted videos on the theme of World Brain Day: Prevention, Awareness, Education, Advocacy to uplift the brain health. Over 80 submissions were received. The top five submissions were showcased on the World Brain Day Webinar Platform and given prizes.

Epilepsy Foundation India organized a public awareness program for people with epilepsy. The program kicked off with a painting competition and a welcome address by Dr. Nirmal Surya. He talked about the importance of brain health and the theme of leaving no one behind and how to keep the brain healthy and disease-free.

Prof. Tina Wijeratne, co-chair of WFN and WFN, talked about brain health and disability and why it is important to have awareness in developing countries. Dr. Chandrashekhar Meshram, trustee of the WFN, emphasized the need of brain health in epilepsy as well as other diseases such as stroke, Parkinson’s, and dementia. A dance and lecture session by members of the Epilepsy Foundation was also organized.

The World Brain Day campaign will certainly contribute toward promotion of brain health, awareness and prevention of disability, early diagnosis and prevention of neurological disorders, and in turn improving the patient care.

The IAN’s Plans for World Brain Day 2024

In continuation of the campaign Brain Health for All, the WFN has decided the theme for WBD 2024 is Brain Health and Prevention. The Indian Academy of Neurology will participate in the 2024 campaign in a big way. India has a high incidence of young strokes. With the increase in life expectancy, the problems of diseases such as dementia and Parkinson’s disease are on the rise. Lifestyle medication, diet, and air pollution are important issues that need to be addressed. Public awareness for causes and prevention of neurological diseases will be the top priority during the 2024 WBD activity in India.