Annual Report 2019
Focusing on the heart of our business while securing our future

«Our mission is to improve the quality of neuro care worldwide through excellence in education and training, building on our Global Neuro network.»
– Paul Manson, President
Global Neuro is one of the most exciting initiatives that I have been part of in my career of 20 years of neurosurgery. It brings together a variety of key opinion leaders in neurosurgery and other fields that have an interest and a passion in improving outcomes in patients with neurosurgical and neurological diseases."

– Shelly Timmons, Founding Member
I T IS A GREAT PERSONAL HONOR

for me to present to you Global Neuro Foundation’s Annual Report 2019 which seeks to connect our past, present and future.

AO Neuro began in 2008 with several educational offerings mainly in Europe under the flags of the AO Foundation and AO CMF—the clinical division focusing on cranial maxillofacial surgery. Since then, it has slowly expanded globally to the Americas, Asia and Africa. In 2017 AO Neuro became the Global Neuro Foundation (Global Neuro) in order to pursue the advantages of being a global independent medically guided non-profit foundation based in Davos, Switzerland. Meanwhile, Global Neuro is a successful continuing medical education provider—accredited in countries where applicable—a knowledge leader in Neurotrauma education and provider of Complex Cranial Access and Neurovascular education.

In 2019 we organized seven courses in Neurotrauma, two Complex Cranial Access courses and one successful pilot course on Neurovascular.

For the Foundation the year 2019—similar to 2018—were years of transition, precipitated by shifts compared to the preceding years in governance, sustainability, priorities, company appeal and global reach. However, strengthened organizational performance and governance are enabling Global Neuro to establish a future in which it can survive and thrive.

This coming year we will focus on the heart of our business and plan to run 12 courses, likely involving 100 Faculty and reaching 615 neuro professionals. Meanwhile, we will work on securing the future of Global Neuro. But there is more you can expect from us in 2020. It excites me to share with you that the Global Neuro curriculum on Neurotrauma will officially be published in the Neurosurgical Focus (JNS Publishing Group) in March 2020, a milestone many of us have worked hard for. During the year we will add innovative modules to it and further develop our Complex Cranial Access and Neurovascular education offer.

Global Neuro is committed to provide education throughout the world and to interfacing with other societies, organizations, institutions, industry, and whatever group of people that has the same vested interest in improving patient outcomes. Because collaboration is required to make the greatest impact.

To this end, we are pursuing a partnership with the World Federation of Neurosurgical Societies (WFNS) in order to create an enlarged education. This structure will allow Global Neuro to access emerging markets, while tapping into new funding streams. We expect to develop the program in 2020 and to roll this out together in 2021.

The nurturing of a growing network, sourced from experts in the field, enhancing awareness of Global Neuro’s offering and creating new partnerships, will further allow Global Neuro to keep serving neurosurgeons worldwide.

On behalf of the entire Foundation Board and the Administrative Office in Davos, I trust that this Annual Report will provide you with valuable information and a reason to connect with us. To those who already work with us: in warm appreciation of all your work, thank you for your dedication to the mission of Global Neuro in 2019 and we look forward to continuing our collaboration in 2020 and beyond.

PAUL MANSON
President, Global Neuro
Johns Hopkins University, USA
Course 8: Erlangen, Germany
Neurosurgeons Michael Buchfelder (chair) and Maleeha Ahmad (participant)
Every year 22.6 million patients suffer from neurological disorders or injuries that warrant the expertise of a neurosurgeon, of whom 13.8 million require surgery. There are around 49,940 neurosurgeons in the world and Traumatic Brain Injury (TBI) forms 60% of their workload.

TBI occurs when a sudden trauma causes damage to the brain, it is a major health and economic problem and the leading cause of death and disability worldwide. It can affect anyone, anywhere, causing death and changing lives forever.

To address such a healthcare issue, it is imperative to improve neurosurgeons training during and after their medical residency with appropriate neurotrauma competences. Unfortunately, the development of these competences is very heterogeneous due to several factors:

- Low volume of neurotrauma cases in training/practice centers
- Program focus different than neurotrauma—i.e. spine, vascular, cranial base, functional
- Instructor’s bias over different personal preferences
- Lack of resources and equipment present in centers who deal daily with neurotrauma—which is especially the case in Low- and Middle-Income Countries (LIMC).

All the issues mentioned, are clearly generating a problem at some stage of the patient management process. Worldwide disparities in the provision of surgical care result in otherwise preventable disability and death.

Neurosurgeons are saving lives and Global Neuro is serving neurosurgeons by providing high quality education to strengthen their proficiency and improve their decision-making skills relative to neurotrauma and critical care.

«I have learned an effective way of decompressing; which I think I am going to use in my country. I have also learnt the importance of teamwork and so I will try to involve more professionals, although this may be difficult.»

— Bethelehem Yesehak Worku, Participant
«Traumatic Brain Injury is a process, not an event. Alone we can achieve nothing, collaboration is key for success to achieve best patient outcomes.»

– Omar Kouli, Participant

This figure shows a magnetic resonance image with tractography for a patient with favorable outcome (left) and for a patient with poor outcome (right). Note the substantial thinning of white matter tracts in the patient with poor outcome, illustrative of the chronic nature of TBI with progressive loss of white matter fibers over time.
A patient’s story

**COUNTRY: COLOMBIA**  
**PATIENT: DANILO PECHENE**  
**AGE: 33 YEARS OLD**

Danilo Pechene is a father of two young children living in a rural community one hour and a half drive from the urban area of Cali. He works as an operator of milking equipment in a dairy farm. He had an accident that could have ended his life.

On September 8, 2019, when he was leaving his work on his motorcycle, he was involved in a traffic accident and suffered a severe TBI with acute subdural hematoma and great cerebral edema (figure 1). He was transferred to the San Fernando Clinic—a specialized center in neurotrauma and neurocritical care—where he was cared for by a team of neurosurgeons led by Raúl Echeverrí—Global Neuro faculty. A decompressive craniectomy was performed in order to reduce the pressure inside the skull, evacuate the bruises and give the edematized brain the possibility of recovering from the injury (figure 2).

Due to a favorable clinical evolution and after having overcome the acute inflammatory phase of brain tissue (figure 3), in October it was possible to perform cranioplasty surgery to repair the bone defect caused by primary cranial decompression (figure 4).

Global Neuro plays a fundamental role in providing training in this type of procedures to neurosurgeons. Because of continuous education provided by Global Neuro, it is possible to give patients with limited resources like Danilo, the opportunity to receive the necessary care in a timely manner. If the decompressive craniectomy had not been performed, cerebral edema and hematomas would have favored the progressive increase of intracranial pressure, causing the death of the patient due to cerebral interlocking, with no chance of survival.

Currently Danilo is living a normal life, back to work, without functional limitations and with a favorable clinical evolution.

There are many stories like this, not only at the San Fernando Clinic (where on average 30 similar surgeries are performed every year), but all over the world. Global Neuro is giving patients the opportunity to receive the appropriate and timely treatment they need.

TBI is the main cause of disability in young populations worldwide. And in Latin America, TBI is one of the leading causes of death due to traffic accidents. Colombia does not escape this reality. Cali is one of the cities with the highest incidence of traffic accidents in all of Colombia.
Global Neuro provides continuing medical education—accredited in countries where applicable—is a knowledge leader in Neurotrauma education and offers Complex Cranial Access and Neurovascular education.

The educational offer builds on highly esteemed faculty and continuously improved curricula, developed according to patient’s needs by surgeon expert groups supported by education specialists.

All curricula are continuously evaluated and improved. Courses enjoy an excellent reputation, and always include state of the art treatment summaries and teaching is interactive with case- and discussion-based training. On many occasions practical exercises are featured.

Global Neuro faculty are Key Opinion Leaders, who wholeheartedly share their knowledge and expertise with their colleagues. They are active in research and therefore at the forefront of new developments and include neurosurgeons, neurologists, neuro intensivists, neuro radiologists, and other professionals who are involved in TBI and treatment.

Collaboration is required to make the greatest impact and to this end Global Neuro seeks to cooperate with existing international and national Neurological organizations to capture the effectiveness and breadth achieved by such partnerships.

GLOBAL NEURO’S CURRICULA
- Provide comprehensive frameworks for our education in selected areas of practice in cranial neurosurgery
- Establish a competency-based approach to developing all educational activities
- Define learning outcomes that should be achieved by clinicians to improve care based on patient problems
- Establish quality standards in our educational activities

OPTIMIZED EDUCATIONAL EXPERIENCES
- Ensure our events are designed to address the patient problems and the needs of our target audiences
- Address all stages of a career: from training, to early years in practice, to experts
- Integrate the latest science of education for designing, implementing, and evaluating quality education
- Provide measurable results from an outcome-driven approach

«Global Neuro offers me the opportunity to pursue one of my passions in life and that is to provide educational courses for my junior colleagues. In this way, knowledge gained from my own experience can be handed on and clinical problems that I encountered possibly avoided.»

– Stephen Lewis, Founding Member
Founding members

PAUL MANSON
President, Global Neuro,
Johns Hopkins University, USA

ROCCO ARMONDA
MedStar Washington Hospital Center & Georgetown University Hospital, USA

ROSS BULLOCK
University of Miami, USA

RANDALL CHESNUT
University of Washington, USA

ANTHONY FIGAJI
University of Cape Town, South Africa

PETER HUTCHINSON
University of Cambridge, UK

STEPHEN LEWIS
Perth Neurosurgery, Australia

GEOFFREY MANLEY
University of California, USA

CHRISTIAN MATULA
Medical University of Vienna, Austria

DAVID OKONKWO
University of Pittsburgh, USA

WAI POON
The Chinese University of Hong Kong, Hong Kong

ANDRÉS RUBIANO
El Bosque University, Colombia

SHELLY TIMMONS
Indiana University Health, USA
«Organizing courses with Global Neuro is a pleasure. And it should be, as we are all doing this in our own time. It is good to hear that our course attracted a great deal of attention and praise which reflects the investment by everyone involved.»

– Andreas Demetriades, Course Chair
2019 Courses
A detailed insight into the heart of our business

When the courses are the heart of Global Neuro’s business, the curricula and its faculty are the backbone. All Global Neuro courses are designed to address a broad spectrum of needs that a practitioner faces during the basic and advanced care of patients in different regions of the world.

Courses cover current research and the best strategies and considerations for managing patients. Additional competencies in professionalism and communication skills aspects have been considered as an important part of the curricula and content is delivered using multiple methods.

Comprehensive lectures concentrate on the understanding of core material, interactive case presentations further deepen this knowledge and enrich discussion. Such case-based discussions link the lecture material with the challenging clinical scenarios encountered in everyday practice. Some Global Neuro courses feature practical sessions with either skull models or life surgery or surgery in a wet lab setting or anatomy.

All Global Neuro course curricula are continuously evaluated and improved. Every event is evaluated by faculty and participants following a standard set of assessment questions resulting in a Likert scale score between 0 (lowest) and 5 (highest ranking).

In 2019 the mean impact evaluation score of Global Neuro Courses was 4.68

A MESSAGE TO ALL CHAIRS AND FACULTY OF GLOBAL NEURO COURSES:
Your relentless commitment to organize, contribute, chair and wholeheartedly share your knowledge and expertise with your peers, has been of vital support to Global Neuro’s mission of promoting the quality of neuro care worldwide through excellence in education and training.
This Global Neuro Course—Advanced Management of Neurotrauma included demo sessions which taught the application of Global Neuro principles to manage common injuries while case-based discussions linked the lecture material and practical skills with the problems encountered in clinical practice.

This course has been developed for residents, surgeons, and physicians who are experienced in the management of cranial neurotrauma and who have a strong interest in complex patient care, clinical research, and an interdisciplinary approach.

OBJECTIVES:
- Apply current neurotrauma management systems and protocols
- Manage complex neurotrauma, including penetrating lesions, vascular lesions and skull base fractures with an interdisciplinary approach
- Performing and interpreting advanced images and neuro-monitoring
- Plan and perform the following operating techniques: multi-monitor catheters, complex cranial reconstruction, including control of complex bleeding
- Manage complex complications such as metabolic disorders, CSF fistulas and coagulopathy

RESULTS:
39 Participants learned how to manage complex cranial neurotrauma by using advanced monitoring, devices, and techniques. With a focus on management of challenging clinical scenarios and complications.

DATA EVALUATION:
4.65 – Overall Impact
4.57 – Objectives Met

LECTURES:
4.41 – Content Rating
4.55 – Faculty Rating

DISCUSSION GROUPS:
4.54 – Content Rating

PRACTICAL EXERCISE:
4.63 – Content Rating
COURSE 2:  
WFNS PRE-MEETING EVENT: GLOBAL NEURO SEMINAR  
Neurotrauma  
WHERE: BELGRADE, SERBIA  
WHEN: 21 MARCH 2019

CHAIRS:  
András Büki  
Pècs University  
Maurizio Iacoangeli  
Università politecnica delle Marche  
Fatos Olldashi  
National Trauma Center Tirana

FACULTY:  
Kenan Arnautovic  
Semmes Murphey Clinic  
Francesco Biroli  
Ospedale Papa Giovanni XXIII Bergamo  
Marek Czosnyka  
University of Cambridge  
Andreas Demetriades  
Western General Hospital  
Stefan Florian  
University of Medicine and Pharmacy Haţieganu  
Christian Matula  
Universitätsklinik AKH Vienna  
Angelo Pompucci  
Università Cattolica Sacro Cuore Rome  
Artur Xhumari  
University of Medicine Tirana  
Djula Djilvesi  
Clinical Center of Vojvodina  
Lukas Rasulic  
Clinical Center of Serbia  
Franco Servadei  
Humanitas University

RESULTS:  
18 Participants have learned the theoretical basis and practical principles for managing neurotrauma, addressing complications, and performing state-of-the-art.

DATA EVALUATION:  
4.35 – Overall Impact  
3.90 – Objectives Met

LECTURES:  
4.33 – Content Rating  
4.38 – Faculty Rating

DISCUSSION GROUPS:  
4.44 – Content Rating

Organized as a pre-course at the World Federation of Neurosurgical Societies (WFNS) International Meeting, this event included preselected cases submitted by participants in advance. It was developed for surgeons who manage neurotrauma and reconstruction and who have a strong interest in these fields with a focus on interdisciplinary care. Appropriate for neurosurgeons, CMF, ENT, trauma, and other surgeons.

OBJECTIVES:  
- Apply current classification systems and guidelines in neurotrauma  
- Manage neurotrauma in adult, pediatric, and polytrauma patients  
- Conduct advanced neuromonitoring  
- Plan and perform appropriate triage strategies
A unique one-day symposium attached to the Chinese Headtrauma Forum presenting a large international faculty sharing their expertise. Simultaneous translations ensured that local participants could fully benefit.

It has been developed for certified surgeons and other healthcare providers, who manage neurotrauma and reconstruction and who have a strong interest in these fields. It focuses on interdisciplinary care and is appropriate for neurosurgeons, CMF, ENT, trauma, and other surgeons.

OBJECTIVES:
- Apply current classification systems and guidelines in neurotrauma
- Manage neurotrauma and skull base fractures in adult, pediatric, and polytrauma patients
- Conduct advanced neuromonitoring
- Plan appropriate operative treatment (e.g. decompressive craniectomy and complex cranial reconstruction)

RESULTS:
75 Participants attending this symposium were taught about the theoretical basis and practical principles for managing neurotrauma, addressing complications, and performing state-of-the-art reconstructive surgery. Because this course was broadcast by Neurosurgery News, it reached another 956 people.

DATA EVALUATION:
4.47 – Overall Impact
4.02 – Objectives Met

LECTURES:
4.54 – Content Rating
4.58 – Faculty Rating

DISCUSSION GROUPS:
4.73 – Content Rating
RESULTS:
63 Participants were taught on the theoretical basis and principles for managing traumatic brain injury and making proper decisions in complicated cases.

DATA EVALUATION:
4.25 – Overall Impact
3.88 – Objectives Met

LECTURES:
4.25 – Content Rating
4.31 – Faculty Rating

OBJECTIVES:
- Explain pathophysiology and treatment guidelines of traumatic brain injury
- Conduct advanced neuromonitoring
- Understand the current status of treatment for severe traumatic brain injury
- Manage craniofacial trauma, cerebrospinal fluid leak and hydrocephalus properly
- Predict the outcome of patients with traumatic brain injury
- Plan and perform appropriate surgical treatment in complicated cases
- Understand the current situation and the future direction of clinical trials

Featuring international and local faculty experts, this seminar took place at the Wonju Severance Christian Hospital. It attracted a lot of attention in Korea as local Chiefs of Departments promoted the course in whole Korea. The seminar has been developed for neurosurgeons and all allied staff involved in the management of the patients with traumatic brain injury.
Course 5: Nuevo Vallarta, Mexico
Companies showcasing products, services and latest innovations
Based on Global Neuro’s Neurovascular curriculum, this one-day pilot course was attached to the Congreso Mexicano e Internacional de Cirugia Neurologica 2019, presenting a combination of lectures, case discussions and hands-on training using simulated endovascular procedures.

The course has been developed for vascular and endovascular neurosurgeons, interventional neuroradiologists, interventional neurologists, fellows and senior residents with a strong interest in cerebrovascular disease.

**OBJECTIVES:**

- Formulate an evidence-based management plan for acute ischemic stroke, large vessel occlusion, anterior and posterior circulation
- Use standard and advanced approaches for acute large vessel occlusion
- Identify candidates for mechanical thrombectomy based on initial clinical presentation and advanced imaging techniques (perfusion)
- Manage acute ischemic stroke with advanced endovascular techniques
- Identify pro and cons of aspiration only versus stent retriever mechanical thrombectomy
- Manage acute ischemic stroke complex cases (tandem lesions, posterior circulation, associated intracranial stenosis)
- Enhance perioperative medical management to improve endovascular and clinical outcomes
- Manage intracerebral hemorrhage with minimal invasive neurosurgical procedures
- Manage complications of endovascular techniques for acute ischemic stroke and use bailout techniques
- Manage complications of ICH evacuation and use bailout techniques

**RESULTS:**

It improved the knowledge and skills in the management of mechanical thrombectomies of 34 participants.

This pilot course was received very well by all parties involved and will be replicated in Colombia in 2020.

**DATA EVALUATION:**

- 4.62 – Overall Impact
- 4.61 – Objectives Met

**LECTURES:**

- 4.82 – Content Rating
- 4.66 – Faculty Rating

**DISCUSSION GROUPS:**

- 4.61 – Content Rating

**PRACTICAL EXERCISE:**

- 4.50 – Content Rating
A joint course, which took place at Robinson College, University of Cambridge, with on the one hand the British Neurosurgical Trainee Course and on the other hand Global Neuro’s Neurotrauma Course, whereby Global Neuro focused on organizing and managing the practical part and exercises. The course provided an update on the basic science topics relevant to neurosurgery and covered current best strategies and considerations for managing patients with cerebrospinal fluid disorders and TBI.

The course has been developed for neurosurgical trainees and residents.

OBJECTIVES:
- Explain the pathophysiology and management strategies of cerebrospinal fluid disorders
- Explain the pathophysiology and treatment guidelines for TBI
- Conduct advanced neuromonitoring
- Understand current treatment of severe TBI
- Plan and perform decompressive craniectomy, insertion of intracranial multimodality monitoring and external ventricular drain
- Understand current status and future directions of clinical trials in TBI

RESULTS:
46 Participants were provided with theoretical basis and principles for management of cerebrovascular fluid disorders and neurotrauma.

DATA EVALUATION:
4.80 – Overall Impact
4.42 – Objectives Met

LECTURES:
4.46 – Faculty Rating
COURSE 7:
2019 WFNS SPECIAL WORLD CONGRESS: PRE-CongRESS EVENT
GLOBAL NEOuro COURSE

Neurotrauma
WHERE: BEIJING, CHINA
WHEN: 8 SEPTEMBER 2019

CHAIRS:
András Büki
Pécs University
Franco Servadei
Humanitas University
QU Xin
Xuanwu Hospital, Capital Medical University

FACULTY:
Gail Rosseau
George Washington University
Geoffrey Manley
University of California
Peter Hutchinson
University of Cambridge
GAO Guoyi
Renji Hospital, Shanghai, China
GAO Liang
Shanghai Capital, China
JIANG Jiyao
Renji Hospital, Shanghai, China
LIU Weiming
Beijing Tiantan Hospital, Capital Medical University
XU Yueqiao
Xuanwu Hospital, Capital Medical University
YANG Chaohua
West China Hospital, Sichuan University
LING Feng
President of WFNS Special World Congress

A pre-congress event of the WFNS Special World Congress, taking place at the Xuanwu Hospital, Medical University. Practical demo sessions taught the application of Global Neuro principles to the management of common injuries; case-based discussions linked the lecture material and practical skills with the clinical problems encountered in clinical practice.

The course has been developed for surgeons who manage neurotrauma and reconstruction and who have a strong interest in these fields. It has a focus on interdisciplinary care and is appropriate for neurosurgeons, CMF, ENT, trauma, and other surgeons with the above awareness.

OBJECTIVES:
- Define major steps of triage and apply it
- Stratify traumatic brain injury upon pathology
- Explain noninvasive monitoring tools
- Explain invasive monitoring tools
- Plan and execute surgery for cranial vault expansion

RESULTS:
76 Participants of this course learned the theoretical basis and practical principles for managing neurotrauma, addressing complications, and performing state-of-the-art reconstructive surgery with special emphasis on problems of Low- and middle-income countries (LMIC).

DATA EVALUATION:
4.33 – Overall Impact
4.01 – Objectives Met

LECTURES:
4.24 – Content Rating
4.48 – Faculty Rating
Course 6: Cambridge, UK
Raúl Echeverri (faculty)
and participant
COURSE 8:
GLOBAL NEURO COURSE
Complex Cranial Access
WHERE: ERLANGEN, GERMANY
WHEN: 3-6 NOVEMBER 2019

CHAIR:
Michael Buchfelder
University of Erlangen-Nuremberg

FACULTY:
Sven-Martin Schlaffer
University Hospital Erlangen

University Hospital Erlangen hosted this four-day highly personalized course focused on pituitary surgery. Competences were defined by an international faculty of experts. Didactic sessions focused on pertinent anatomy, pathophysiology, operative techniques and modern methodology. Differential diagnosis, potential complications and interdisciplinary management of various entities of pituitary disease were also covered. The common microsurgical and endoscopic approaches were taught in a systematically guided manner and performed in live surgeries.

This Global Neuro course has been developed for fully trained neurosurgeons and neurosurgical residents who as yet have very limited experience in pituitary surgery. It addresses the complex anatomy of the central skull base and the functional relevance of the pituitary and its neighborhood, relevant approaches, and current concepts in the surgical management of pituitary lesions, including the indications and contraindications for surgery and medical treatments.

OBJECTIVES:
■ Describe the complex anatomy of the sella region and its relation to the surrounding areas
■ Perform the most up-to-date endoscopic and microsurgical approaches to pituitary tumours
■ Recognize the most relevant pathologies (tumour, vascular and other malformations, etc.)
■ Apply the most up-to-date treatment practices for the endocrine disorders caused by pituitary tumours
■ Review the technical solutions that are available to perform pituitary surgery to date

RESULTS:
Surgical skills in endoscopic and microscopic approaches of 6 participants were enhanced, with a focus on interdisciplinary management.

DATA EVALUATION:
5.00 – Overall Impact
4.43 – Objectives Met

LECTURES:
4.78 – Content Rating
4.92 – Faculty Rating

PRACTICAL EXERCISE:
4.79 – Content Rating
COURSE 9:
GLOBAL NEURO COURSE
Neurotrauma
WHERE: EDINBURGH, UK
WHEN: 6-7 NOVEMBER 2019

CHAIRS:
Andreas Demetriades
NHS Lothian & University of Edinburgh
Peter Hutchinson
University of Cambridge
Peter Andrews
University of Edinburgh

FACULTY
Randall Chesnut
University of Washington
Kostantinos Fountas
University of Thessaly
Andrew Maas
University Hospital Antwerp
Christian Matula
Medical University of Vienna
Jonathan Rhodes
NHS Lothian & University of Edinburgh
Catherine McMahon
The Walton Centre
Mark Wilson
Imperial College
Alan Carson
NHS Lothian & University of Edinburgh
Dean Kerslake
NHS Lothian & University of Edinburgh
Angelos Kolias
University of Cambridge
Thomas Owen
Salford Royal NHS Foundation Trust

This highly successful course focused on interdisciplinary care and featured practical sessions with different skull models. It has been developed for surgeons who manage neurotrauma and reconstruction and who have a strong interest in these fields. Appropriate for neurosurgeons, neurointensivists, CMF trauma and other physicians and surgeons.

RESULTS:
30 Participants attending this Global Neuro Course learned the theoretical basis and practical principles that are the foundation for managing cranial neurotrauma.

OBJECTIVES:
- Perform an appropriate assessment of neurotrauma patients with application of relevant guidelines
- Choose the appropriate imaging modalities and interpret the results
- Perform ICP monitoring and interpretation to guide treatment interventions
- Apply current classification systems and guidelines in neurotrauma
- Manage neurotrauma and skull base fractures in adult, pediatric, and polytrauma patients
- Conduct advanced neuromonitoring
- Plan and perform appropriate operative treatment
- Manage CSF leaks and other complications and perform dural repairs
- Manage common complications, such as bleeding, expanding intracranial hematomas, swelling, infection, and hydrocephalus

DATA EVALUATION:
4.95 – Overall Impact
4.37 – Objectives Met

LECTURES:
4.60 – Content Rating
4.75 – Faculty Rating

DISCUSSION GROUPS:
4.64 – Content Rating

PRACTICAL EXERCISE:
4.32 – Content Rating
Global Neuro Course—Neurotrauma, Edinburgh UK

Wednesday, November 6, 2019

Time  | Agenda Item                                | Faculty
---    |--------------------------------------------|---------
07:30–08:00 | Registration                              | P Andrews
08:00–08:10 | Welcome and introduction                  | A Demetriades

Module 1: Epidemiology, Pathophysiology, and Imaging

08:10–08:30 | Epidemiology of neurotrauma               | A Maas
08:30–08:50 | Pathophysiology of neurotrauma            | K Fountas
08:50–09:10 | State-of-the-art imaging                  | T Demetriades

Module 2: Critical Care Management—putting the expert between the patient and monitor

09:10–09:30 | Critical care management of Traumatic Brain Injury (TBI)—guidelines and recommendations | P Andrews
09:30–09:50 | Multimodal neuromonitoring—mechanical pressure (ICP) | J Rhodes
09:50–10:20 | Interactive case presentation and discussion | R Chestnut

10:20–10:40 | The emerging role of pupillometry in TBI | C McMahon
10:40–11:00 | Coffee Break                              | All faculty

Module 3: Update on recent trials in TBI

11:15–11:35 | Eurotherm—where are we now with hypothermia in TBI? | P Andrews
11:35–12:15 | Trials of chronic subdural hematomas        | A Maas
12:15–12:30 | Questions and discussion                   | All faculty
12:30–13:30 | Lunch                                     | All faculty

Thursday, November 7, 2019

Time  | Agenda Item                                | Faculty
---    |--------------------------------------------|---------
08:30–08:50 | Prehospital management                    | M Wilson
08:50–09:10 | Emergency department—primary assessment   | D Karake
09:10–09:30 | Craniospinal trauma                       | A Demetriades
09:30–10:20 | Head injury with polytrauma—surgical decision-making and timing of surgery | R Chesnut
09:50–10:40 | Roundtable discussion—organization of your major trauma center | P Hutchinson

Module 7: Cranioplasty and dural repair

10:40–11:00 | Intracranial fractures and traumatic cerebral spinal fluid (CSF) fistula | C Matula
11:00–11:20 | Cranioplasty indications, timing, techniques and complications | P Hutchinson
11:20–11:40 | Reconstruction of the cranial vault | C Matula
11:40–12:10 | Interactive case presentation and discussion: | A Maas
- Sinus fractures
- Traumatic scalp defect management
- Cranial vault reconstruction in trauma
12:10–12:40 | Morning lecture—the challenging landscape of TBI research | A Maas
12:40–13:45 | Questions and Discussion                  | All faculty
13:45–14:15 | Lunch                                     | All faculty

Insights: a typical agenda of a Global Neurotrauma Course
Course 10: Narita, Japan

Neurosurgeons Stephen Lewis and Yasuhiro Sanada (faculty).
Taking place at the IVTec Intervention Technical Center Narita Lab, this course covered the current best strategies and considerations for managing the interhemispheric approach and operating within the midline of the brain as defined in Global Neuro’s curriculum. Comprehensive lectures—anatomy presented in 3D—concentrated on the understanding of core material. Practical sessions during a wet lab setting, taught the application of Global Neuro principles to the management of common clinical problems.

The course has been developed for surgeons who manage deep midline brain lesions and have a strong interest in these fields. It is clearly focused and only appropriate for neurosurgeons and neurosurgical residents.

OBJECTIVES:
- Know the respective anatomy
- Find indications and contraindications for the interhemispheric approach
- Manipulate the brain
- Perform transection and haemostasis

RESULTS:
18 Participants have learned how to handle the brain during the interhemispheric midline approach and know for which indications it is appropriate respecting its limitations.

DATA EVALUATION:
5.00 – Overall Impact
4.34 – Objectives Met

LECTURES:
4.71 – Content Rating
4.94 – Faculty Rating

PRACTICAL EXERCISE:
4.60 – Content Rating
Global reach since 2008
COURSE 2
GLOBAL NEURO SEMINAR
Neurotrauma
BELGRADE, SERBIA
21 MARCH 2019

COURSE 7
GLOBAL NEURO COURSE
Neurotrauma
WONJU, SOUTH KOREA
31 MAY – 1 JUNE 2019

COURSE 8
GLOBAL NEURO COURSE
Complex Cranial Access
ERLANGEN, GERMANY
3-6 NOVEMBER 2019

COURSE 4
GLOBAL NEURO SEMINAR
Neurotrauma
BEIJING, CHINA
8 SEPTEMBER 2019

COURSE 10
GLOBAL NEURO COURSE
Complex Cranial Access
NARITA, JAPAN
14 DECEMBER 2019

COURSE 3
GLOBAL NEURO SYMPOSIUM
Neurotrauma
LUZhou, CHINA
26 APRIL 2019

30 COUNTRIES
100 COURSES
3,895 PARTICIPANTS
2020 Courses planned

12 COURSES PLANNED:

Neurotrauma Courses
- Italy, Brescia
- China, Hefei City
- Chile, Santiago
- Canada, Banff
- Korea, Cheonan
- Brazil, Sao Paulo
- Sweden, Stockholm
- USA, Baltimore

Neurovascular Course
- Colombia, Bogotá

Complex Cranial Access Courses
- Germany, Erlangen
- China, Wuhan
- Italy, Ancona

100 Faculty will be active
The back bone of our organization is our network of esteemed faculty. They are continuously developing curricula and are sharing their knowledge at Global Neuro courses. A close connection between participants and faculty during the courses ensures an optimal learning experience.

Welcoming 615 Neuro Professionals
Each year we strive to reach and welcome more and more practicing neurosurgeons at our educational activities. Also in 2020 we will be active in different parts of the world. This coming year we expect to welcome 615 participants.

COURSE 1
GLOBAL NEURO COURSE
Neurotrauma
Location: Brescia, Italy
Date: 30 January 2020
Day: 1
Audience: National
Chairs:
Marco Fontanella
Maurizio Iacoangeli
Number of participants: 20

COURSE 2
GLOBAL NEURO SYMPOSIUM
Neurotrauma*
This course is attached to the Chinese Headtrauma Forum.
Location: Hefei City, China
Date: 16 April 2020
Day: 1
Audience: National
Chairs:
Gao Guo-Yi
Jiang Jiyao
Geoffrey Manley
Number of participants: 100

COURSE 3
GLOBAL NEURO COURSE
Complex Cranial Access*
This course is attached to the Neurosurgical Conference.
Location: Wuhan, China
Date: 4–6 May 2020
Days: 3
Audience: International
Chairs:
Ting Lei
Michael Buchfelder
Number of participants: 40

*Due to the Corona virus outbreak, these courses may change dates.
COURSE 4  GLOBAL NEURO ADVANCED COURSE  Neurotrauma  This brain and spine trauma course is attached to the 55th CNSF Congress.  
**Location:** Banff, Canada  
**Date:** 6 June 2020  
**Day:** 1  
**Audience:** International  
**Chairs:**  
- Gregory Hawryluk  
- Geoffrey Manley  
- Michael Fehlings  
**Number of participants:** 100

COURSE 5  GLOBAL NEURO ADVANCED COURSE  Neurotrauma  
**Location:** Santiago, Chile  
**Date:** 19–20 June 2020  
**Days:** 1.5  
**Audience:** International  
**Chairs:**  
- Jose Ignacio Moretti  
- Patricio Bustos  
**Number of participants:** 40

COURSE 6  GLOBAL NEURO SEMINAR  Neurotrauma  
**Location:** Cheonan, Korea  
**Date:** 19–20 June 2020  
**Days:** 1.5  
**Audience:** National  
**Chairs:**  
- Sang Koo Lee  
- Se-Hyuk Kim  
**Number of participants:** 60

COURSE 7  GLOBAL NEURO ADVANCED COURSE  Neurotrauma  
**Location:** Sao Paulo, Brazil  
**Date:** 14–15 August 2020  
**Days:** 1.5  
**Audience:** National  
**Chair:**  
- Wellingson Paiva  
**Number of participants:** 40

COURSE 8  GLOBAL NEURO COURSE  Neurovascular  
**Location:** Bogotá, Colombia  
**Date:** tbd  
**Days:** 2  
**Audience:** International  
**Chairs:**  
- Fernando Gonzalez  
- Rocco Armonda  
**Number of participants:** 40

COURSE 9  GLOBAL NEURO COURSE  Complex Cranial Access  
**Location:** Ancona, Italy  
**Date:** tbd  
**Days:** 2  
**Audience:** International  
**Chairs:**  
- Maurizio Iacoangeli  
- Francesco Biroli  
**Number of participants:** 20

COURSE 10  GLOBAL NEURO COURSE  Complex Cranial Access  
**Location:** Erlangen, Germany  
**Date:** September 2020  
**Days:** 3  
**Audience:** International  
**Chairs:**  
- Michael Buchfelder  
- Stephen Lewis  
**Number of participants:** 20

COURSE 11  GLOBAL NEURO COURSE  Neurotrauma  
**Location:** Stockholm, Sweden  
**Date:** 20–21 September 2020  
**Days:** 2  
**Audience:** International  
**Chairs:**  
- B-M Bellander  
- Jiri Bartek  
**Number of participants:** 35

COURSE 12  GLOBAL NEURO COURSE  Neurotrauma  
Cranioplasty and Implantable Neurotechnology with cadaver lab  
**Location:** Baltimore, United States of America  
**Date:** 7–8 November 2020  
**Days:** 2  
**Audience:** International  
**Chairs:**  
- Chad Gordon  
- Paul Manson  
**Number of participants:** 100

«We want you to join us, help us to create our future; the best way to create a better future, is by doing it yourself.»  
– Christian Matula, Founding Member
INCOME (CHF)
Cooperation Agreement AO Foundation: 376,401
Sponsorship (grants and donations): 777,573
Exhibitor Fees: 17,548
Participant Fees: 24,464

EXPENSES (CHF)
General & Administrative: 107,109
Governance & Management: 142,261
Communication & Partnerships: 48,928
Educational Activities: 719,075
Grants and in-kind support from our partners, have been instrumental in funding to deliver on Global Neuro’s mission in 2019. It enabled the Foundation to provide its high quality education to neurosurgeons worldwide, to strengthen their proficiency and to improve their decision-making skills relative to neurotrauma and critical care. Preventing unnecessary disability and death of patients as the ultimate result.

### INCOME STATEMENT 2019

<table>
<thead>
<tr>
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<th>EXPENSES</th>
<th>INCOME</th>
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<td><strong>INCOME</strong></td>
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<tr>
<td>Cooperation Agreement AO Foundation</td>
<td>376,401</td>
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<tr>
<td>Sponsorship (grants and donations)</td>
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<td>Participant Fees</td>
<td>24,464</td>
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<tr>
<td>Exhibitor Fees</td>
<td>17,548</td>
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<tr>
<td><strong>Total Operating Income</strong></td>
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<td><strong>1,195,986</strong></td>
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<td><strong>EXPENSES</strong></td>
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<tr>
<td>Educational Activities</td>
<td>719,075</td>
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<td>Communication &amp; Partnerships</td>
<td>48,928</td>
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<td>142,261</td>
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<tr>
<td>General &amp; Administrative</td>
<td>107,109</td>
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<tr>
<td><strong>Total Operating Expenses</strong></td>
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<td><strong>Operating Results</strong></td>
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<td><strong>178,613</strong></td>
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<td>Financial Results</td>
<td>(23,763)</td>
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<tr>
<td>Extraordinary Result</td>
<td>30,108</td>
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<tr>
<td><strong>Net Result</strong></td>
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<td><strong>184,958</strong></td>
</tr>
</tbody>
</table>
Global Neuro thanks all its partners for helping us extend access to neurosurgery, neurotrauma and critical care education across the globe. Neurosurgeons are saving lives and together we are serving neurosurgeons, preventing unnecessary disability and death.

“As a global leader in orthopaedics, we believe that high-quality surgeon education programming is one of the most critical components in creating value for the global healthcare system and increasing the standard of care for patients. By combining DePuy Synthes’ market-leading technologies, reach and scale with the expertise of professional organizations like Global Neuro, we are able to extend world-class surgeon training opportunities to even more clinicians across various surgical specialties. We proudly supported Global Neuro’s state-of-the-art 2019 educational events that enhance the skills of neurosurgeons and improve outcomes for patients living with neurosurgical conditions.”

– DePuy Synthes

“Integra LifeSciences supports Global Neuro’s commitment to educating clinicians to improve patient outcomes in neurosurgery. As a world leader in neurosurgery, Integra strives to do everything possible to ensure surgeons make the right decision with confidence, and focus on what is most important. Clinical education offered by Global Neuro has a similar aim. The educational curricula delivered at Global Neuro educational events by key opinion leaders in neurosurgery is of the highest quality, and the courses offered have undoubtedly led to implementing best practices in developed and developing regions of the world. The Global Neuro staff are passionate about their mission, and the foundation as a whole is an invaluable resource in extending access to neurosurgery and neurocritical care education across the globe. We look forward to continued support of Global Neuro and its mission!”

– Jason Marzuola, Senior Manager, Global Medical Affairs, Integra LifeSciences

Partners benefit from:

- Access to new markets
- Platform for showcasing products, services and latest innovations
- Interaction with neurosurgical key opinion leaders
- Participation in high quality CME curriculum-based educational activities
In 2019, Global Neuro also received generous support from other industry partners such as:

- Abbott
- BD Korea
- Brainlab
- Cerenovus
- InfraScan
- La Instrumentadora
- MicroVention
- NeurOptics
- OssDsign
- Penumbra
- Rapid Medical
- Varlix

Our main strategic partners in 2019 were the AO Foundation and the leading vendors in the Global Neurosurgical Device Market:

- DePuy Synthes
- Integra LifeSciences
Name: Global Neuro Foundation
Founded: 13 December 2017
Legal form: Foundation (Stiftung)
Administrative Office:
Clavadelerstrasse 8
7270 Davos, Switzerland
Website: www.globalneuro.org
Email: info@globalneuro.org
Telephone: +41 79 337 09 42
Registration:
Grisons, Switzerland
With the status of a
Public Benefit Organisation
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Johnson & Johnson (retired), USA
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Rocco Armonda
MedStar Washington Hospital Center & Georgetown University Hospital, USA

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