



# Honoring the Mentors from 2024: A Tribute to Their Legacy

Francisco TERZANO<sup>1,2</sup>, Francisco ZARRA<sup>2</sup>, Andrea L. CASTILLO<sup>3</sup>, Adnan Hussain SHAHID<sup>4</sup>, Ismail BOZKURT<sup>5,6</sup>, Bipin CHAURASIA<sup>7</sup>, Alejandro Mercado SANTORI<sup>8</sup>

<sup>1</sup>Clínica la Sagrada Familia, Department of Neurosurgery, Ciudad Autónoma de Buenos Aires, Argentina

<sup>2</sup>University of Buenos Aires School of Medicine, Department of Neurosurgery, Buenos Aires, Argentina

<sup>3</sup>LINT, Facultad de Medicina, Universidad Nacional de Tucumán, Tucumán, Argentina

<sup>4</sup>University of South Alabama, Department of Neurosurgery, Mobile, United States

<sup>5</sup>Yuksek Ihtisas University, Faculty of Medicine, Department of Neurosurgery, Ankara, Türkiye

<sup>6</sup>Medical Park Ankara Hospital, Department of Neurosurgery, Ankara, Türkiye

<sup>7</sup>Neurosurgeon at the Department of Neurosurgery, Neurosurgery Clinic, Birgunj 44300

<sup>8</sup>Hospital Marcial Quiroga, Department of Neurosurgery, San Juan, Argentina

**Corresponding author:** Francisco ZARRA ✉ franciscozarra@hotmail.com

## ABSTRACT

The concept of a mentor represents one of the most important pillars of medical training. It constitutes one of the oldest and noblest arts that has contributed to the growth of this specialty for generations. Mentorship is the essential way to transmit knowledge and values to future generations, ensuring the continuation of legacy in the field. Therefore, the experience and knowledge of current neurosurgeons reflect the influence of previous neurosurgeons. This article aims to show respect to the educators and mentors who passed away in 2024 around the world, with deep gratitude, as learning from those who preceded us helps build a lasting legacy in neurosurgery.

A literature review was conducted to examine the deaths of neurosurgeons in 2024 worldwide, without limitation to the English language.

A total of 35 neurosurgeons were identified worldwide: six from Latin America (Argentina, Brazil, Chile, Colombia, and Mexico); seven from North America (Canada and the United States); eighteen from Asia (Turkey, India, Bangladesh, Greece, Japan, Pakistan, and South Korea); three from Europe (Spain, Poland and Greece); and one from Africa (Egypt).

In 2024 there was a great loss to the global neurosurgical community. The deceased neurosurgeons left an indelible mark and a legacy that will endure through their disciples and students. The main lesson is to remain proud and grateful for sharing this discipline across generations, preserving the true values of human knowledge.

**KEYWORDS:** Ethics, Legacy, Medical education, Mentors

## INTRODUCTION

The concept of a mentor is profound and transcendent. It is much more than a friendship with a professor and constitutes a cornerstone of medical training (1). This tribute to the legacy of mentors serves as a reflection on and acknowledgment of these individuals who unintentionally

guide their disciples to pursue neurosurgical training, clinically and academically, and to transcend these boundaries (2,3).

In respect and honor of the neurosurgeons who passed away around the world in 2024, we have prepared a humble tribute highlighting their achievements in neurosurgery, categorized according to their country of residence (Table I).

**Table I:** Neurosurgeons Known to have Departed in 2024, Categorized by Continent-Country

Full name	Country	Field	Date
1- Mohammed Tawfik Hosny	Egypt	Skull Base	1980-2024
2- Sandip Chaterjee	India	Pediatric neurosurgery	1960-2024
3- Raj Ghoniya	India	General neurosurgery	1990-2024
4- Jagtar Singh Twana	India	Spine surgery	1936-2024
5- Vijay Kumar Kak	India	Pediatric neurosurgery	1938-2024
6- Annaswamy Raja	India	Cerebrovascular diseases	1951-2024
7- Sunil Pandya	India	General neurosurgery	1940-2024
8- Tipu Aziz	Bangladesh	Functional Neurosurgery	1959-2024
9- Saeed A. Bajwa	Pakistan	General neurosurgery	1951-2024
10 - Tae Sung Park	South Korea	Pediatric neurosurgery	1947-2024
11- Aysima Altınok	Türkiye	General neurosurgery	1929-2024
12- Osman Ekin Özcan	Türkiye	General neurosurgery	1947-2024
13- Ant Metin Atasoy	Türkiye	General neurosurgery	1951-2024
14- Mehmet Akif Yürürdurmaz	Türkiye	General neurosurgery	1963-2024
15- Nuriye Güzin Özdemir	Türkiye	General neurosurgery	1969-2024
16- Cem Akkurt	Türkiye	Neuro-oncology	1958-2024
17- Zeki Buharalı	Türkiye	General neurosurgery	1938-2024
18- Cahit Özşeker	Türkiye	General neurosurgery	1945-2024
19- Takanori Fukushima	Japan	Skull Base	1942-2024
20- José Gerardo Martín Rodríguez	Spain	Functional neurosurgery	1941-2024
21- Jacek M. Malik	Poland	Spine neurosurgery	1957-2024
22- George Samandouras	Greece	Neuro-oncology	1967-2024
23- Douglas Cochrane	Canada	Pediatric neurosurgery	1950-2024
24- Frances Conley	United States	Spine neurosurgery	1940-2024
25- John P. Girvin	United States	Functional neurosurgery	1934-2024
26- Mark E. Shaffrey	United States	Skull Base	1961-2024
27- David G. Kline	United States	Peripheral nerve	1934-2024
28- Rupert Smith, Jr	United States	Skull Base	1932- 2024
29- L. Nelson "Nick" Hopkins III	United States	Endovascular neurosurgery	1943-2024
30- Daniel D'Osvaldo	Argentina	Skull Base	1953-2024
31- Marcos Flavio Ghizoni	Brazil	Neuro-oncology	1946-2024
32- Victor Hugo Bastos Pardo	Colombia	Cerebrovascular diseases	1968-2024
33- Renato Chiorino Radaelli	Chile	Neuro-oncology	1930-2024
34- Fernando Rueda Franco	Mexico	Pediatric neurosurgery	1936-2024
35- Antonio M. Zárate Méndez	Mexico	Cerebrovascular diseases	1944-2024

## ■ AFRICA

### Prof. Dr. Mohammed Tawfik Hosny, Egypt (1980–2024)

Dr. Tawfik Hosny was a distinguished military neurosurgeon from Egypt. He served as a professor of neurosurgery and dean of the School of Medicine, achieving the rank of Major General in the armed forces. He published several peer-reviewed scientific articles in neurosurgery and participated in numerous international conferences. Dr. Hosny left an indelible legacy in the Egyptian Armed Forces and the field of Egyptian neurosurgery.

## ■ ASIA

### Prof. Dr. Sandip Chaterjee, India (1960–2024)

Dr. Chatterjee was born and raised in Kolkata, India, where he graduated from medical school with outstanding academic performance. Later, he moved to the United Kingdom, earning the Fellowship of the Royal Colleges of Surgeons (FRCS) in Edinburgh. He specialized in pediatric neurosurgery, was regarded as a true master in his field, and made exceptional contributions in his field. He served as a former president of the Indian Society of Pediatric Neurosurgery and former Editor-in-Chief of several prestigious indexed journals. With over 150 published scientific papers and 30 book chapters to his credit, his scholarly achievements were remarkable. His students and colleagues will always remember his passion, compassion, and dedication toward his patients. He lived with courage and strength—his love, teachings, and contributions will remain with us forever.

### Prof. Dr. Raj Ghoniya, India (1990–2024)

Dr. Ghoniya was a 34-year-old neurosurgeon who graduated with an MBBS from R. D. Gardi Medical College, Vikram University. He served at the Department of Neurosurgery at All India Institute of Medical Sciences and authored several papers in the field. He will be remembered for his energy, professionalism, and commitment to excellence.

### Prof. Dr. Jagtar Singh Tiwana, India (1936–2024)

Dr. Tiwana was a dedicated educator, mentor, and pioneer in neurosurgery. He obtained his Master of Surgery from the Sanjay Gandhi Postgraduate Institute of Medical Sciences and later completed a fellowship in spine surgery. He worked as a Professor of Neurosurgery at Park Hospital in Panipat, Haryana, India. He authored several national and international peer-reviewed publications. He was deeply respected as a spine specialist and a compassionate human being.

### Prof. Dr. Vijay Kumar Kak, India (1938–2024)

Born in India in 1938, Dr. Kak was an educator, neurosurgeon, and researcher who made significant contributions to neurosurgery. He graduated with honors from Sarojini Naidu Medical College in 1960 and completed his residency at the Royal Victoria Hospital in Belfast, earning his FRCS from the United Kingdom. Later, he joined the Postgraduate Institute of Medical Education and Research, where he achieved remarkable scientific advancements. Moreover, he served as

the Dean of the Post Graduate Institute of Medical Education and Research (PGIMER) School of Medicine in Chandigarh for several years. His interests included vascular and pediatric neurosurgery. He will be fondly remembered for his devotion to his patients and students.

### Prof. Dr. Annaswamy Raja, India (1951–2024)

Dr. Raja was a distinguished neurosurgeon and educator in India. He earned his MBBS from Madras University (1967–1972) and completed his MS in Neurosurgery (1974–1979). He served in Kasturba Medical College, Manipal, progressing through academic ranks to become Head of the Department in 2010. He published numerous papers in national and international journals. His expertise included aneurysm, vascular surgery, arteriovenous malformations, acoustic schwannomas, microsurgical excision of spinal cord AVMs, and intramedullary spinal cord tumors. He introduced several innovative microsurgical techniques and is regarded as one of India's legendary neurosurgeons.

### Prof. Dr. Sunil Pandya, India (1940–2024)

Dr. Pandya began his medical training at Seth GS Medical College and KEM Hospital in Mumbai. He continued his career at Jaslok Hospital and Research Centre in the same city thereafter. His contributions to neurosurgery in Mumbai and across India were exceptional. His passion and love for his profession will always be remembered.

### Prof. Dr. Tipu Aziz, Bangladesh (1959–2024)

Born in Bangladesh in 1956, Dr. Aziz pursued his early education there before moving to the United Kingdom, where he studied neurophysiology at the University of London and developed an interest in deep brain stimulation and functional neurosurgery. He earned his doctorate from the University of Manchester, focusing his research on Parkinson's disease in primates. His groundbreaking work greatly benefited the medical community. In 2013, he received the "Service to Medicine Award" at the British Muslim Awards, and in 2024, he was honored by the British Society for Stereotactic and Functional Neurosurgery for his outstanding contributions to global neurosurgery. A legend in his field, Dr. Aziz will always be remembered for his compassion, mentorship, and dedication to patients.

### Prof. Dr. Saeed Bajwa, Pakistan (1951–2024)

Originally from Pakistan, Dr. Bajwa graduated from Nishtar Medical College, University of Punjab, Lahore, and completed his neurosurgery residency at the Military Hospital in Lahore. Later, he migrated to the United States of America in 1980 to continue his medical career and worked for many years with Universal Health Services. A leader in advancing neurosurgical techniques, Dr. Bajwa was known for his dedication, compassion, and patient-centered care. His demise is a great loss not only to neurosurgery but also to his many patients and mentees.

### Prof. Dr. Tae Sung Park, South Korea (1947–2024)

Dr. Park was born in South Korea and graduated from Yonsei University College of Medicine, where he completed his

neurosurgery residency. He pursued advanced training in the United States at the University of Virginia and Ohio State University, with research fellowships in pediatric neurosurgery at Harvard Medical School and the University of Toronto. His research focused on vascular injuries in neonatal brains and syringomyelia. A pioneer of selective dorsal rhizotomy, Dr. Park was regarded as a legend in pediatric neurosurgery. He joined Washington University in 1989 and served for over 35 years as Professor and Surgeon in the Division of Pediatric Neurosurgery. He passed away at the age of 77, leaving a legacy of excellence, compassion, and innovation that continues to inspire neurosurgeons worldwide.

**Prof. Dr. Aysima Altınok, Turkey (1929–2024)**

Dr. Aysima Altınok was born in 1929 in Erzincan, Turkey. She graduated from Istanbul University School of Medicine with honors, ranking third in her class. She completed her residency under the mentorship of Dr. Hami Dilek at Haydarpaşa Numune Hospital. In 1959, she became Turkey's first female neurosurgeon and one of the earliest female neurosurgeons in the world, serving as an inspiration for generations of women in neurosurgery. In 1968, she became a clinic chief and a founding member of the Turkish Neurosurgical Society. She retired in 1992, continuing to engage in the activities she loved. Her legacy remains indelible for future generations of female neurosurgeons.

**Prof. Dr. Osman Ekin Özcan, Turkey (1947–2024)**

Originally from Turkey, Dr. Özcan was one of the key founders of the Turkish Neurosurgical Society. He graduated with honors from Hacettepe University School of Medicine. He will be remembered as a great neurosurgeon for his dedication to his patients and for his important role in shaping the history of Turkish neurosurgery.

**Prof. Dr. Ant Metin Atasoy, Turkey (1951–2024)**

Dr. Atasoy began his career in mining engineering but later pursued medicine. He completed his medical degree and neurosurgery residency at Ankara University. Eager to enhance his skills, he undertook additional training and observation excursions in Japan, the United States, Switzerland, Germany, Canada, and the United Kingdom. Upon returning to Turkey, he applied the knowledge gained abroad to revitalize the Department of Neurosurgery at Eskişehir Osmangazi University. Dr. Atasoy served as a mentor and cornerstone for his students, leaving a lasting legacy in Turkish neurosurgery.

**Prof. Dr. Mehmet Akif Yürürdurmaz, Turkey (1963–2024)**

Dr. Yürürdurmaz graduated in medicine in Bursa and trained in neurosurgery in Istanbul, achieving an outstanding professional career. Thereafter, he continued his practice in Izmir, leaving an enduring impact on his patients, students, and the history of neurosurgery in Turkey.

**Prof. Dr. Nuriye Güzin Özdemir, Turkey (1969–2024)**

Dr. Güzin Özdemir was a dedicated Turkish neurosurgeon and educator known for her compassion and professionalism. She made significant contributions to primary cerebral lymphomas and played an important role in the advancement of women in

Turkish neurosurgery. Her legacy remains a permanent part of the country's neurosurgical history.

**Prof. Dr. Cem Akkurt, Turkey (1958–2024)**

Dr. Cem Akkurt was a remarkable Turkish neurosurgeon specializing in neuro-oncology. He graduated from Istanbul University Faculty of Medicine in 1981 and completed his neurosurgery residency at Hacettepe University Faculty of Medicine in 1990. Later, he served as a professor and attending neurosurgeon at Düzce Atatürk and Muş State Hospitals. He passed away at the age of 66, leaving behind a legacy of clinical excellence and dedication.

**Prof. Dr. Zeki Buharalı, Turkey (1938–2024)**

Dr. Buharalı devoted his career to teaching and mentoring countless neurosurgeons at Ankara Training and Research Hospital. His lifelong commitment to education helped shape the future of neurosurgery in Turkey. His contributions and influence will forever be respected and honored.

**Prof. Dr. Cahit Özşeker, Turkey (1945–2024)**

Born in 1945 in Bursa, Turkey, Dr. Özşeker was an accomplished educator and neurosurgeon. A graduate of Bursa Erkek Lisesi, he was a lifelong and dedicated member of the Turkish Neurosurgical Society, serving the profession for 50 years. His steadfast commitment and contributions to neurosurgery will always be remembered with the highest respect.

**Prof. Dr. Takanori Fukushima, Japan (1942–2024)**

Dr. Fukushima graduated with honors from the School of Medicine at University of Tokyo in 1968. He served for nearly a decade as Professor of Neurosurgery and Chief of Neurosurgery at Mitsui Memorial Hospital. He is recognized as a pioneer in skull base surgery and the inventor of keyhole surgery, earning worldwide acclaim as a true legend in his field. His groundbreaking work and dedication to neurosurgical education and innovation will continue to shape the field for generations to come.

## ■ EUROPE

**Prof. Dr. José Gerardo Martín Rodríguez, Spain (1941–2024)**

Dr. Martín Rodríguez, affectionately known as "Pepe" among Spanish and international neurosurgeons, was a highly respected figure in the global neurosurgical community. Within the World Federation of Neurosurgical Societies (WFNS), he made significant contributions as Secretary under Dr. Ed Laws and co-founded the WFNS Foundation alongside Dr. Majid Samii. For over three decades, this foundation has supported the training of neurosurgeons and improved care in underserved regions. In recognition of his lifelong commitment and enduring legacy, the Spanish Society of Neurosurgery has dedicated the WFNS World Congress in Madrid 2025 to his memory.

**Prof. Dr. Jacek M. Malik, Poland (1957–2024)**

Dr. Malik was born in Wroclaw, Poland, in 1957, and graduated with honors in Medicine from the Medical University of

Wroclaw. Later, he completed his neurosurgery residency at the University of Virginia in Charlottesville. He served as Professor of Neurosurgery and Head of the Department at the Veterans Affairs Hospital in Little Rock, Arkansas, for several years. Throughout his career, he specialized in spinal surgery. We will always remember his great legacy and his deep love for his patients and students.

#### Prof. Dr. George Samandouras, Greece (1967–2024)

Dr. Samandouras was born in Greece in 1967 and completed his neurosurgery residency in Oxford in 2007, followed by a neuro-oncology fellowship in France in 2008. His main field of expertise was brain tumors. He was a consultant neurosurgeon at the Victor Horsley Department and the editor of *The Neurosurgeon's Handbook*. He will be remembered for his remarkable life philosophy, dedication to patient care, and his status as a true legend in the field of neurosurgery.

### ■ NORTH AMERICA

#### Prof. Dr. Douglas Cochrane, Canada (1950–2024)

Dr. Cochrane was born in Cambridge, Ontario, Canada, in 1950. He studied medicine at the University of Toronto Medical School and completed his neurosurgery residency at the University of Calgary. Later, he pursued a fellowship in Pediatric Neurosurgery at the Hospital for Sick Children in Toronto. He enjoyed an outstanding 30-year partnership with Dr. Paul Steinbok in the Division of Pediatric Neurosurgery at the British Columbia Children's Hospital. Over his career, he performed more than 3000 neurosurgical operations and trained generations of medical students, residents, and fellows. Moreover, Dr. Cochrane served in several healthcare leadership roles across the province. He is fondly remembered for his dedication, intensity, and pursuit of excellence.

#### Prof. Dr. Frances Conley, United States (1940–2024)

Originally from Palo Alto, California, Dr. Conley completed her medical studies at Stanford University in 1966 with outstanding distinction. She became the first woman to practice neurosurgery at Stanford University and, in 1975, the first female faculty member in the Department of Neurosurgery. In 1986, she became the first woman to chair a neurosurgery department at any North American university. She will be remembered as an inspirational role model for female neurosurgeons worldwide.

#### Prof. Dr. John P. Girvin, United States (1934–2024)

Dr. Girvin was born in Detroit, Michigan, in 1934. He obtained his MD from Western University in 1958 with honors, followed by a PhD in neurophysiology and neurological training at the Montreal Neurological Institute. He furthered his studies in Glasgow and Cleveland. In 1977, he established the Epilepsy Program at Western University and was deeply devoted to the training of neurology residents and fellows. Dr. Girvin led significant advances in surgical techniques, particularly in brain electrical stimulation and awake epilepsy surgery. He will be remembered forever as a passionate and dedicated neurosurgeon.

#### Prof. Dr. Mark E. Shaffrey, United States (1961–2024)

Dr. Shaffrey was born in West Virginia, United States and earned his Bachelor of Science degree in Biochemistry and Biology in 1983. He completed medical school at the University of Virginia. Then, he enlisted in the United States Air Force. Dr. Shaffrey completed his neurosurgical residency between 1988 and 1994, serving as Chief Resident from 1993 to 1994. After fulfilling his Air Force obligation, he joined the University of Virginia Health Sciences Center as Associate Professor and Vice-Chairman (1997–2003). From 2008 until his passing, he held the David D. Weaver Professorship and chaired the Department of Neurological Surgery. His academic achievements included more than 150 publications, and he was recognized as one of *America's Top Surgeons*. An active member of American Association of Neurological Surgeons (AANS), Congress of Neurological Surgeons (CNS), and Society of Neurological Surgeons (SNS), he was a healer, mentor, and loyal friend who devoted his life to patient care—a true legend in neurosurgery.

#### Prof. Dr. David G. Kline, United States (1934–2024)

Dr. Kline was born in Philadelphia in 1934 and became a trailblazer in neurosurgery, revolutionizing the treatment of nerve tumors and peripheral nerve injuries. He graduated from the University of Pennsylvania and completed his neurosurgical residency at the University of Michigan. Dr. Kline served in the U.S. Army at Walter Reed General Hospital and received the prestigious Cushing Medal in 2006. A member of numerous national and international neurosurgical societies, his humanity, compassion, and brilliance as a surgeon defined his legacy. His passing marks a great loss to the field.

#### Prof. Dr. Rupert Smith, Jr., United States (1932–2024)

Dr. Smith was born in Greenville, Illinois. He completed medical school at Washington University with distinction, followed by neurosurgical training at Johns Hopkins and Barnes Hospital, and fellowships in neuroanatomy at Washington University and Oxford. In 1966, he became the founding Chairman of Neurosurgery at Saint Louis University Hospital. A pioneer in the field, Dr. Smith advanced neuroanatomical research, trained generations of neurosurgeons, and contributed significantly to professional organizations. His enduring legacy lives on in the lives he touched.

#### Prof. Dr. L. Nelson "Nick" Hopkins III, United States (1943–2024)

Dr. Hopkins was considered as one of the fathers of endovascular neurosurgery and a world-renowned neurosurgeon, neuroradiologist, and researcher. He completed medical school at Albany Medical College with distinction, followed by neurosurgical residency at Case Western Reserve University. He spent much of his career at Buffalo University, where he was the chairman of the Department of Neurosurgery. A former president of the AANS, Dr. Hopkins was a pioneer in neuroradiology, ushering in a new era in stroke management and leaving an indelible mark on the field.

## ■ LATIN AMERICA

### Prof. Dr. Daniel D'Osvaldo, Argentina (1953–2024)

He was an esteemed educator and neurosurgeon from Argentina. He graduated with honors from the Facultad de Medicina, Universidad de Buenos Aires (UBA), and completed his neurosurgery training at the Hospital de Clínicas José de San Martín in Buenos Aires. He pursued further studies at the Instituto de Neurocirugía Costa Buero and at the Institute of Rome, Italy. As a dedicated professor of neurosurgery at UBA and a member of the Argentine College of Neurosurgeons, his main fields of expertise included brain tumors, pituitary gland tumors, and vascular malformations. His passion, energy, and commitment to patient care were exceptional. We will always remember his warmth, humility, and devotion.

### Prof. Dr. Marcos Flavio Ghizoni, Brazil (1946–2024)

Dr. Marcos Flavio Ghizoni was born in Urubici, Santa Catarina. After completing his formal education in Neurosurgery, he joined the medical staff of Hospital Nossa Senhora da Conceição in 1979. Then, he established the hospital's Neurosurgery Center and promoted the installation of its first CT scanner. He earned a Master's degree in Health Sciences from the University of Southern Santa Catarina, where he also served as a professor. In 2013, he was honored by the Legislative Assembly of Santa Catarina for developing a novel surgical technique for brachial plexus injuries—a procedure now cited in more than 50 journals and presented internationally. He was also recognized for performing awake brain surgeries for tumor removal. Remembered as an educator and pioneer in neurosurgery, his legacy continues to inspire the neurosurgical community.

### Prof. Dr. Victor Hugo Bastos Pardo, Colombia (1968–2024)

Dr. Bastos Pardo served as Professor of Neurosurgery at the Universidad Nacional de Colombia and was affiliated with the Hospital Universitario Nacional for over 20 years. He was an active member of the Asociación Colombiana de Neurocirugía, making a significant impact on neurosurgery in Latin America. His main area of expertise was vascular surgery. He will be remembered for his passion for neurosurgery and for leaving an enduring mark on the legacy of Colombian neurosurgery.

### Prof. Dr. Renato Chiorino-Radaelli, Chile (1930–2024)

Dr. Chiorino was a pioneer in neurosurgery and neuropathology, and a dedicated educator and mentor from Chile. He trained at the Instituto de Neurocirugía Capixaba, specializing in neuropathology. At the age of 71, he received the "Dr. Héctor Valladares Medal" from the Chilean Society of Neurosurgery and was later honored by Society of Neurology, Psychiatry and Neurosurgery (SONEPSYN) as a "Master of Neurosurgery." He founded one of Chile's most advanced neuropathology laboratories. His legacy remains indelible.

### Prof. Dr. Fernando Rueda Franco, Mexico (1936–2024)

Dr. Franco was born in Mexico City in 1936 and completed his medical education at the Universidad Nacional Autónoma de México, earning his degree in 1960 with a thesis titled "Cerebral blood circulation and vascular malformations of the

brain," and obtained his doctorate. In 1963, he began his neurosurgery specialization at the Children's Hospital of Mexico, continuing at the Neurological Institute of New York. He spent most of his career at the Neurology and Neurosurgery Service of the Mexican Institution for Assistance to Children (IMAN), now the National Institute of Pediatrics. A tireless researcher, prolific writer, and critical reader, his publications addressed important topics in pediatric neurosurgery. He will be remembered as a true legend among Mexican neurosurgeons.

### Prof. Dr. Antonio M. Zárate Méndez, Mexico (1944–2024)

Dr. Zárate Méndez was a renowned Mexican neurosurgeon who dedicated his life to cerebrovascular and stereotactic surgery, areas in which he became a true master. He studied medicine at the Benemérita Universidad Autónoma de Puebla and completed his neurosurgery training at Centro Hospitalario 20 de Noviembre. In 1994 and 1995, he pursued advanced training in stereotactic surgery at the Detroit Medical Center, Michigan, Wayne State University, as well as at the Cologne University Hospital and Phillips University Hospital in Germany. He published numerous papers in indexed journals and authored several books. We will always remember his unwavering dedication, focus, and pursuit of excellence.

## ■ CONCLUSION

In 2024 there was a profound loss for the global neurosurgical community. Each of these neurosurgeons left a lasting legacy that endures in their students, apprentices, and colleagues. Their lives exemplified generosity, compassion, and professional mastery, leaving an indelible imprint on the scientific world. We remain thankful and proud to continue passing this science from generation to generation, preserving the authentic values of human wisdom. Despite our best efforts, some names may have been inadvertently omitted. We sincerely acknowledge this limitation and honor all the unnamed pioneers whose contributions continue to shape the history of neurosurgery.

### Limitations

The authors were unable to identify every neurosurgeon worldwide who passed away in 2024. Another limitation was the inability to include personal photographs in this manuscript to protect intellectual property rights. We recognize these limitations but still honor and respect these unsung heroes whose legacies remain enduring and profound.

**Acknowledgments:** Neurosurgery cocktail.

**Use of artificial intelligence (AI)-assisted technology for manuscript preparation:** The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI.

**Comment:** The authors of this tribute express their respect and tribute to the neurosurgeons who left us in 2024. The authors have intellectual property rights (IPR) over the opinions they express in writing and the figures provided in the paper; it can be cited by other authors after their publication in the journal.

**Declarations**

**Funding:** This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Availability of data and materials:** The datasets generated and/or analyzed during the current study are available from the corresponding author by reasonable request.

**Disclosure:** The authors declare no competing interests.

**AUTHORSHIP CONTRIBUTION**

The authors (FT, FZ, ALC, AHS, IB, BC, AMS) confirm responsibility for the following: study conception and design, data collection, analysis and interpretation of results, and manuscript preparation.

**REFERENCES**

1. Ahmed A, Waheed A, Yaqoob E, Jabeen R, Chaurasia B, Javed S: Carving a path to the brain: A study on neurosurgery career choices. *World Neurosurg* 188:e405-e413, 2024. doi: 10.1016/j.wneu.2024.05.126
2. Deora H, Yagnick NS, Tripathi M: Mentor-mentee relationship in neurosurgery: Standing on the shoulder of giants. *World Neurosurg* 141:110-112, 2020. doi: 10.1016/j.wneu.2020.05.208
3. Graziano F, Gerardi RM, Scalia G, et al: Women in neurosurgery: From a matter of fortuitous occasions toward a conscious choice. *World Neurosurg* 148:129-135, 2021. doi:10.1016/j.wneu.2021.01.049