

# International Fellowship Report in Surgical Epileptology of the International League Against Epilepsy – Latin America 2024-2025

The International League Against Epilepsy, through its Latin American chapter, promoted the creation of a training program in epilepsy surgery in mid-2023, aimed at professionals in countries of the region that did not have experience in this field. In this context, when the call for the program was opened, the information reached me through the neurology team from my home country, Nicaragua. Since there is no epilepsy surgery program in my country, and due to my genuine interest in the field, I began the application process and was notified of my acceptance at the beginning of 2024.

## Stage I: Buenos Aires, Argentina

The Fellowship began in the city of Buenos Aires in April 2024 under the mentorship of Dr. Marcelo Bartuluchi. This training period primarily took place at the Prof. Dr. Juan P. Garrahan Pediatric Hospital, but I also participated in procedures and case discussions at the Fleni Hospital, located in the same area. It is worth mentioning that this was my first exposure to the field of epilepsy surgery beyond reading.

Under the supervision of Dr. Bartuluchi, I participated in procedures for managing pharmaco-resistant epilepsy, mainly in pediatric patients. These procedures included approaches such as: anterior temporal lobectomies, lesionectomy, hemispherectomy, vagus nerve stimulation, implantation of deep brain electrodes for SEEG, among others.



*Figure 1 Accompanied by Dr. Bartuluchi at the West Syndrome Symposium, Buenos Aires.*

In addition to the surgical interventions, I participated in "case discussions" held in collaboration with the neurology, neuroradiology, pathology teams, and others, to make decisions on patient management in both institutions. With the support of Dr. Reyes and Dr. Pocciecha, I also participated in

neuro-monitoring procedures for patients in the video-EEG unit and in patient follow-up consultations.

During this time, I was able to acquire the fundamental bases for understanding electrophysiological events, pathophysiology, and the main surgical techniques for managing these patients.



Figure 2 Certificate of participation in the LACE Congress, September 2024.

I had the opportunity to participate in the symposium commemorating the International West Syndrome Day, organized by FUNDHEMI (Fig.1), held at the legislature in this same city, where I gained a wealth of knowledge and experiences from professionals with significant expertise in the field, as well as from patients and their families

regarding this issue.

During this stage of the Fellowship, I worked on a case series report of mesial temporal sclerosis in the pediatric population, which combined patients from both healthcare centers. This work was presented at the Argentine League Against Epilepsy (LACE) congress held in September 2024 (Fig.2).

My stay in Buenos Aires ended in July, and by the end of this stage, I had participated in:

- 4 hemispherectomy procedures
- 7 anterior temporal lobectomy procedures
- 3 lesionectomy procedures
- 4 vagus nerve stimulation procedures
- 3 deep brain electrode implantation procedures for SEEG
- Around 20 Video-EEG studies across both centers

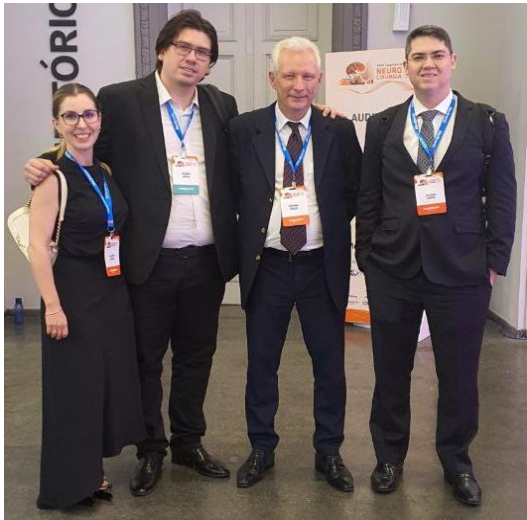


Figure 3 Fluoroscopy of a patient with deep brain electrode implantation for stereo electroencephalography at the FLENI hospital.

- Discussion of more than 30 pharmacoresistant epilepsy cases across both centers

## Stage II: Sao Paulo, Brazil

In August, I met Dr. Arthur Cukiert in the city of Sao Paulo, Brazil, and began the second stage of the program. During this period, I became more familiar with various neuromodulation techniques available for managing pharmacoresistant epilepsy. I was based at the Cukiert Neurology and Neurosurgery Clinic.



*Figure 5 At the Brazilian Neurosurgery Congress, with Dr. Cukiert's surgical team.*

Under Dr. Cukiert's supervision, I participated in various surgical procedures, including deep brain stimulation, vagus nerve stimulation, callosotomy, and others. I also participated in patient follow-up and treatment planning for these cases. On some occasions, I had the opportunity to assist Dr. Cukiert with patient follow-ups at the Santa Casa Hospital in the same city.

Thanks to the efforts and management of the clinic's team, I participated in various workshops and training courses in the field of neuromodulation and stereotactic surgery, including some of the following:

- Theoretical-Practical Stereotaxy Course organized by Micromar

- Personalized training on the characteristics and use of the vagus nerve stimulation system by LivaNova
- Personalized training on the characteristics and use of the deep brain stimulation system by Medtronic
- Brazilian Neurosurgery Congress (Fig.5)
- Personalized workshop on the characteristics and use of the deep brain stimulation system by Boston Scientific
- Deep brain stimulation workshop by Medtronic
- Theoretical-practical course on surgical techniques for the treatment of epilepsy, held during the Brazilian Neurology Congress at Unicamp
- SEEG Workshop, Principles, Fundamentals, and Practical Applications: Hands-on, organized by the Cukiert Neurology and Neurosurgery Clinic (Fig.6)



*Figure 6 With Dr. Philippe Kahane at the SEEG Workshop in Sao Paulo.*

In addition to attending and participating in the study and follow-up of patients at the clinic, through the center's mentoring program for other institutions in the region, I had the opportunity to exchange experiences in managing patients with other centers in Paraguay and Mexico, virtually.

At the end of my stay in Sao Paulo, in November, I participated in:

- 3 callosotomy procedures
- 6 deep brain stimulation procedures
- 5 vagus nerve stimulation procedures
- More than 10 training and scientific events
- Discussion of more than 50 pharmaco-resistant epilepsy cases across the different mentioned modalities

### Stage III: Mexico City, Mexico

In December, I traveled to Mexico City, where the final stage of the program took place at the HMG Coyoacán Hospital, under the mentorship of Dr. Mario A. Vanegas. At this center, I addressed a wide variety of pediatric and adult patients, and the surgical procedures covered both age groups. The most frequent therapeutic approaches included: anterior temporal lobectomy, callosotomy, lesionectomy, and vagus nerve stimulation.



*Figure 8 With Dr. Alonso at HMG Hospital.*

I participated in the examination, interpretation of studies, and decision-making in the surgical approach for the patients, as well as in their postoperative follow-up.

During this time, I completed a proposal for the creation of an epilepsy surgery service in my country, based on the knowledge acquired throughout the program and feedback from my mentors. The document has already been submitted to the relevant authorities.

Additionally, I participated in the study of various cases of interest in the population that visits this center, resulting in the drafting of articles related to them. Taking advantage of Dr. Alonso's casuistry, we also created a paper that covered the centers in Argentina and Mexico where I had been training, regarding mesial temporal sclerosis in pediatric patients.



*Figure 9 At the symposium commemorating International Epilepsy Day.*

In celebration of International Epilepsy Day, held on February 10, I gave a brief presentation on the topic: "Update on the Classification of Epileptic Seizures,"

during the symposium held at this healthcare center (Fig.9).

By the end of my practices in Mexico City, I participated in:

- 4 callosotomy procedures
- 3 anterior temporal lobectomy procedures
- 5 lesionectomy procedures
- 2 vagus nerve stimulation procedures

- 1 deep brain stimulation procedure
- Discussion of more than 50 pharmaco-resistant epilepsy cases

### Considerations Regarding the Program

At the conclusion of the Fellowship program, I have acquired substantial and solid knowledge regarding pharmaco-resistant epilepsy, from its diagnosis, study, therapeutic approach, psychosocial impact, and surgical techniques for management. I was able to structure a proposal with the necessary scientific rigor to, for the first time in my country's history, address this population. I also had the opportunity to share experiences with professionals of the caliber of my mentors during this period.

Undoubtedly, this is a highly relevant program, especially in places where the field of epilepsy surgery has not yet been developed. The scientific and technical quality of the mentors is of the highest level, and the structure of the program, in such a way that one learns from the most experienced aspect of each of the mentors, ensures a comprehensive education in the field.

The approach to various population groups, both in terms of age and ethnicity, promotes a uniform understanding of the different ways in which this disease presents and the optimal treatment for each of them.

One point to consider, which could be strengthened for future editions of the program, is to enable the legal framework for conducting practical procedures during the Fellowship. While this was not a major issue in Argentina and Mexico, regulations in Brazil prevent such practices without the necessary permits, which were not able to be obtained in this edition of the program. Therefore, it would be much more enriching for the student's education to establish the appropriate channels to allow them to participate in procedures.

Finally, I am immensely grateful for the opportunity provided by the ILAE to undergo this academic training, and I will forever be thankful to each of my mentors who guided me and shared their knowledge and experiences in this fruitful field. It has truly been an invaluable opportunity for all countries or centers where we do not have the necessary training to perform these procedures. The impact in countries like mine will undoubtedly be noticeable in the short and medium term. I sincerely hope they continue to promote the program and reach even more people to improve the quality of life of many patients who suffer from this issue.

Sincerely,

A handwritten signature in black ink, appearing to read 'B. Montiel Mendieta', with a long horizontal line extending to the right.

Dr. Brayan S. Montiel Mendieta

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