



Neurosurgery & Neurology Institute

A PROGRAM OF SOLIDARITYBRIDGE

Neurology Mission Trip Sucre and Santa Cruz, Bolivia April 24-29, 2022

I. Introduction

This report summarizes the activities of the April 2022 Neurosurgery and Neurology Institute (NNI) trip to Sucre and Santa, Bolivia. The trip was planned in collaboration with the UK based nonprofit organization, Tele-EEG, as well as the following Bolivian hospitals: Hospital Santa Bárbara in Sucre, the Hospital San Juan de Dios in Santa Cruz, and the Hospital de Niños in Santa Cruz. The U.S. team consisted of neurologist Dr. Jeff Loeb, neurosurgeon Dr. Richard Moser, Solidarity Bridge staff Maria Eugenia Brockmann and Lindsay Doucette. The Bolivia team included Puente de Solidaridad director Patricia Vargas, and interpreter Dr. Luciana Rasguido.

II. Trip Goals

- Equip and train two Bolivian public hospitals for the administration of EEG tests
- Provide consultation on neurological cases and resident training
- Explore the possibility for residency exchange with the University of Illinois Chicago (UIC)
- Provide guidance for the development of an epilepsy research project

III. Meeting our Goals

a. EEG Equipping and Training with TeleEEG

On this trip, the NNI partnered with the UK based nonprofit organization TeleEEG. Dr. Steve Coates, Anne Clarke, and Howard Potts met the NNI team in Sucre for work with the neurology service at the Hospital Santa Bárbara. The team donated an EEG machine, headbox, laptop, EEG electrodes, photic stimulator and other accessories that could be used to conduct diagnostic tests with neurology patients. This is the only EEG machine in this large, public hospital, and so it marks a major step forward for the neurology service's ability to serve patients with epilepsy and other neurological disorders. The TeleEEG team met the hospital neurologist, Dra. Mayra Miranda, and trained two neurosurgical residents, two intensivists, and one technician in how to place the electrodes and run EEG tests for in-patient and intensive care patients. They then instructed the trainees how to send the test results to TeleEEG who then employ a network of expert volunteers to interpret the results and send a report back to the hospital.



Later in the week, TeleEEG donated the same equipment to the Hospital San Juan de Dios (HSJDD) in Santa Cruz and conducted the same training with a team there. Through this donation, the NNI hopes to further our collaboration with the newly established neurology service at the hospital. Dr. Carlos Mercado, the only neurologist at the hospital, hopes we can collaborate for future projects that would benefit patients. Dr. Mercado expressed that thanks to the donation of the EEG, HSJDD is the “first and only public hospital in Santa Cruz” with an EEG for adult patients.

TeleEEG team also met with the neurology service at the Children’s Hospital in Santa Cruz and demonstrated how they could also send EEG results to their team of volunteers for interpretation assistance. Altogether in Sucre and Santa Cruz, TeleEEG conducted EEG tests for 10 patients and trained 14 medical staff.

b. Neurological Consultation and Resident Training

At the Hospital Santa Bárbara, Dr. Jeff Loeb spent two days in consultation with Bolivian neurologist Dr. Mayra Miranda. Dr. Miranda is one of three neurologists in all of Sucre. Like many of her colleagues, Dr. Miranda completed her medical specialty training abroad before returning to serve in her hometown of Sucre. The lack of updated diagnostic equipment and technical support has limited the treatment options that Dr. Miranda can offer her patients. Patients are also limited by access to anti-epileptic drugs (AEDs). The Bolivian government provides access to 4 AED medications, while some of the medications that would be the best option for epilepsy patients remain out of reach. This is especially true for patients in rural areas.



Dr. Loeb spent two days in consult with Dr. Carlos Mercado at the Hospital San Juan de Dios in Santa Cruz. During this time in consultation with Dr. Miranda and Dr. Mercado, Dr. Loeb was able to get a good idea of the scope of cases attended, the quality of care provided, and the needs of the neurology programs in both hospitals. Dr. Loeb was impressed with the quality of care provided and expressed an interest to continue partnering with these programs. During the mission week, Dr. Loeb also delivered lectures to residents at both the Hospital Santa Bárbara and the Hospital San Juan de Dios on treating epilepsy and coma patients.

c. UIC Residency Exchange Program

Dr. Loeb met with Dr. David Gardeazabal, director of the Neurology and Neurosurgery service at the Hospital Santa Bárbara in Sucre. They discussed the possibility of developing a residency exchange program with the University of Illinois Chicago. Neurology residents from UIC could spend one month in rotation at the Hospital Santa Bárbara and teach classes at the University San Francisco Xavier (USFX) medical school in Sucre. In exchange, neurosurgery residents from Sucre would be invited for one month neurology rotations at the University of Illinois Chicago. Solidarity Bridge and Puente de Solidaridad could provide logistical support for these exchanges. Dr. Loeb agreed to work with administrators at UIC to develop a proposal to share with the Hospital Santa Barbara and USFX to move the program forward. This proposal will need to account for associated costs and training requirements. Solidarity Bridge and Puente de Solidaridad will support the next steps in this process.

d. Epilepsy Research

Dr. Loeb also met with Dr. Víctor Hugo Cuéllar and Dr. Shirley Martinez, neurologists at the Children’s Hospital in Santa Cruz to discuss plans for an epilepsy research project examining the incidence of epilepsy in premature babies. Plans are underway to send a medical student from the University of Massachusetts to Bolivia in June 2022 to assist with the development of this epilepsy research project.

IV. Patients Served

Emilia was one of the ten patients screened by TeleEEG during the week-long epilepsy mission program. Emilia and three of her four children traveled from their home in Monteagudo, Bolivia to the city of Sucre to seek treatment for epilepsy. It was an eight-hour trip on mostly unpaved roads, but necessary in order to receive care for her worsening condition.



Emilia is a great example of the many epilepsy patients living in rural parts of Bolivia who face tremendous obstacles in receiving adequate monitoring and medication. Emilia heard about the Solidarity Bridge epilepsy mission from her neighbor who is completing an internal residency rotation at the Santa Barbara Hospital in Sucre. The young resident conducted Emilia's EEG test with the hospital's newly donated EEG equipment. Emilia made the trip to Sucre because she was beginning to experience two epileptic events per day. She began noticing signs of epilepsy three years prior after gallbladder surgery. She experienced tonic-clonic seizures with loss of consciousness and violent muscle spasms. She initially came to Sucre for treatment and was given a prescription for one of the four epilepsy drugs that is supported by the Bolivian social security system. However, it was difficult to access this medicine in her rural

area and she eventually stopped taking the medicine. The EEG test at the Santa Barbara hospital captured events that can be analyzed to determine the type of epilepsy that Emilia has and can be used to determine whether she was on the best medicine for her particular condition. However, the challenges remain to make anti-convulsant medicines and informed clinical care more readily available to rural Bolivian patients.

V. In-Kind Donations

The mission team delivered in-kind donations valued at \$36,308.00.

VI. Acknowledgements

Solidarity Bridge is grateful for all who made this trip possible, including the following:

TeleEEG Team:

Dr. Steve Coates, Neuro Physiologist
Anne Coates, EEG Technician
Howard Potts, Interpreter

Dr. David Pérez, Neurosurgeon

Dr. Sandro Gareca, Director

Dr. Cristian Jancko, 2nd year Neurosurgery Resident

Dr. Beimar Paniagua, 1st year Neurosurgery Resident

And Trainees: Mary Corea, Maricel Ochoa, Mercedes Marin, Juan Sote

U.S. Team:

Dr. Jeffrey Loeb, Neurologist
Dr. Richard Moser, Neurosurgeon
Lindsay Doucette, Program Director
Maria Eugenia Brockmann, Sr Program Director

Bolivian Medical Partners Santa Cruz

Dr. Víctor Hugo Cuéllar, Neurologist

Dr. Shirley Martinez, Neurologist

Dr. Carlos Mercado, Neurologist

Lic. Sonia Espinoza, Nurse

And Trainees: Miriam Bascope, Mayra Osinga, Marlene Balderama, Morra Gouresa, Elma Lora, Lidzi Aranibos

Bolivian Support Team:

Patricia Vargas, Director, Puente de Solidaridad
Luciana Rasguido, Interpreter

Bolivian Medical Partners Sucre

Dr. Mayra Miranda, Neurologist

Dr. David Gardezabal, Neurosurgeon

