

## **Building Bridges in Bolivia: UC Davis Neurosurgery Global Health Initiative**

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In 2023, the University of California, Davis (UC Davis) Department of Neurological Surgery launched a new global health initiative aimed at fostering sustainable neurosurgical collaboration. As part of this effort, neurosurgery residents and faculty traveled to Hospital Santa Bárbara in Sucre, Bolivia, to engage in hands-on clinical care, medical education, and research. This program represents a contemporary model for global neurosurgery—one grounded in continuity, equity, and mutual learning.

### *Clinical Collaboration: Partnership in Practice*

Hospital Santa Bárbara serves as a public referral center for southern Bolivia, with a catchment area exceeding 500,000 people. Despite limited resources, the hospital manages high volumes of trauma and complex neurosurgical pathology. In 2023 and 2024, UC Davis teams—including residents and faculty—traveled to Sucre to work directly with Bolivian colleagues and a non-profit governmental organization (Solidarity Bridge). Residents participated in surgeries ranging from craniotomies for trauma to endoscopic endonasal procedures for tumors (*Image 1*). Adapting to local limitations fostered clinical creativity and strengthened surgical decision-making under pressure. The shared operative experiences developed clinical ties and built lasting relationships between the two institutions.

### *Sustainable Teaching and Mentorship*

In parallel with operative collaboration, the UC Davis teams organized seminars focused on neurotrauma management, research design/biostatistics, and manuscript writing (*Image 2*). These sessions were tailored to the needs of local trainees and physicians, fostering engagement and building a foundation for locally led research. These sessions helped spark enthusiasm among Bolivian trainees, who in turn initiated independent research projects and began proposing new directions for collaboration, reflecting true bidirectional knowledge exchange and a shift towards locally driven inquiry [1].

### *Developing Local Research Capabilities*

At the heart of the initiative is the development of a prospective neurotrauma registry (*Image 3*), that captures clinical outcomes and measure adherence to evidence-based practices. While challenges exist, the registry has started to slowly bear fruit: robust data collection that informs both clinical care and future research. The development of the Bolivian database has also enabled early-career global research partnerships. Through the collaborative approach towards developing research infrastructure, the experience has enabled both UC Davis and Bolivian trainees to establish sustainable academic collaboration and in turn produce research grounded in real-world clinical relevance [2].

### *Lasting Benefits for Both Sides*

For UC Davis residents, the experience deepens understanding of global neurosurgical disparities while building cultural humility and clinical versatility. For Bolivian partners, the initiative

brings educational resources, research tools, and international visibility. Most importantly, the collaboration respects local leadership, empowering Bolivian neurosurgeons to define priorities and sustain momentum. Ultimately, initiative's goal is not to provide temporary assistance, but to establish a framework for shared progress. Enabling local teams to drive the agenda, the UC Davis residents return home as advocates for global equity.

*A Model for Global Neurosurgical Training*

By focusing on three key pillars, the UC Davis initiative provides a replicable model for neurosurgical departments looking to incorporate global health into residency training: (1) clinical collaboration (not just observation), (2) sustainable teaching and mentorship, (3) building local research infrastructure, with shared authorship and ownership. As the World Federation of Neurological Societies continues to advance global neurosurgical equity, initiatives like this highlight the critical role of academic institutions and training programs. Through immersive, ethically grounded partnerships, one can develop a global neurosurgical community that is more connected, competent, and collaborative (Image 3).



Image 1: UC Davis and Bolivian neurosurgical teams collaborating on a microvascular decompression case. From left to right: Dr. Freddie Rodriguez (UC Davis resident), Dr. Arash Ghaffari-Rafi (UC Davis resident), Dr. Jared Ament (UC Davis faculty), Dr. Englerth Candia (Hospital Santa Bárbara surgeon), Alejandro Sivila (Universidad Mayor Real y Pontificia de San Francisco Xavier medical student).



Image 2: UC Davis neurosurgical residents working with Bolivian colleagues to develop a sustainable neurotrauma database. L to R: Dr. Ghaffari-Rafi; Cristian D. Mendieta-Barrera (Universidad Mayor Real y Pontificia de San Francisco Xavier medical student); Dr. Rodriguez.



Image 3: Teams from Hospital Santa Bárbara (Bolivia), Solidarity Bridge, and UC Davis.

1. Mendieta-Barrera CB, P.A., Rios-Hurtado C, De Nigris Vasconcellos F, Garcia-Torrico F, Salolin-Vargas VP, Mamani-Julian K, Vidal Valderrama CE, Rivera-Hurtado L, Ballesteros-Herrera D, Tripathi M, Torres-Corzo JG, Ghaffari-Rafi A, *Neuroendoscopic Management of Intraventricular Neurocysticercosis: A Systematic Review and Meta-analysis*. *Clinical Neurology and Neurosurgery*, *Accepted/In Press*. 2025.
2. Ghaffari-Rafi, A., J. Rojas-Leon, and S. Iqbal, *Crossing borders: Fostering early career international networks, critical for medical training and scientific research*. *Ann Med Surg (Lond)*, 2020. **55**: p. 106.