

## Surgical Treatment of Epilepsy in Vietnam: Program Development and International Collaboration

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### Introduction

Here we describe an international collaboration model to facilitate the surgical treatment of children with epilepsy in Vietnam.

### Methods

This model uses three complementary methods to achieve a meaningful expansion in capacity: US-based providers visiting Hanoi, Vietnam; Vietnamese providers visiting the United States; and ongoing telecollaboration, including case review and real-time mentorship using internet-based communication platforms.

### Results

Initial introductions took place during a visit by a US neurosurgeon to Vietnam in 2014. Given the Vietnamese surgeon’s expertise in intraventricular tumor surgery, the focus of the initial visit was corpus callosotomy. After two operations performed jointly, the Vietnamese surgeon went on to perform ten more callosotomy procedures in the ensuing six months with excellent results. Collaborative work matured in 2016-2017, with 40 pediatric epilepsy surgeries performed from 2015 through 2017.

Because pediatric epilepsy care requires far more than neurosurgery, teams travelling to Vietnam included a pediatric neurologist and EEG technologist. Also, in 2016-17, a neurosurgeon, two neurologists, and an EEG nurse from Vietnam completed three-month fellowships at Children’s of Alabama in the US. These experiences improved EEG capabilities and facilitated the development of intraoperative electrocorticography, making non-lesional epilepsy treatment feasible.

The final component has been ongoing, regular communication. The Vietnamese team sends case summaries for discussion at the COA epilepsy conference. Three patients have undergone resection, guided by ECoG, in Vietnam without the US team present, but communicating via internet-based telecollaboration tools between Vietnamese and US EEG technologists. Two of these three patients remain seizure free.

The Vietnamese team has presented the results of their experience at two international functional and epilepsy surgery scientific meetings

Table 1: Five-year History of Vietnam – Children’s of Alabama Epilepsy Surgery Collaboration	
2013	a. Initial visit from Children’s of Alabama neurosurgery to neurosurgeons in Ho Chi Minh City, Vietnam.
2014	a. Introduction to neurosurgeons in Hanoi interested in expanding epilepsy surgery experiences b. Ongoing discussions with neurosurgeons in Hanoi about expanding collaboration
2015	a. First visit to Hanoi by Children’s of Alabama neurosurgeon b. Operative focus: corpus callosotomy
2016	a. Continued visits from Children’s of Alabama team b. Vietnamese neurosurgeon, two neurologists, and EEG nurse complete focused training at Children’s of Alabama c. Operative focus: functional hemispherotomy
2017	a. Two research abstracts on epilepsy program presented by Vietnamese team at international conferences b. First long-distance telecollaboration of intraoperative electrocorticography c. Continued visits from Children’s of Alabama team, and review of Vietnamese epilepsy cases at multidisciplinary epilepsy conference d. Creation of a dedicated epilepsy monitoring unit for long-term EEG monitoring in Hanoi e. Operative focus: non-lesional, non-hemispheric epilepsy, with special emphasis on surgical resection based on electrocorticography
2018	a. Self-sufficient epilepsy program established with reduced need for case review at Children’s of Alabama epilepsy conferences b. Ongoing collaboration and research initiatives

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