

Foundation for International Education in Neurosurgery: The Next Half-Century of Service Through Education

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1. | HISTORY

The Foundation for International Education in Neurological Surgery (FIENS) was founded in 1969, decades before globalization became a worldwide phenomenon (1–3). Initially, efforts were focused on service delivery in under-resourced areas via short mission trips by individual neurosurgeons. The wisdom of furthering the impact by creating sustainable training programs in partnership with host organizations developed over time (3). FIENS is a neurosurgeons foundation working in partnership with various organizations to increase global access to neurosurgery missions through the principle of “service through education (3).” FIENS shifted its focus from a service delivery-centered approach to an approach centered on global health systems strengthening by emphasizing local neurosurgery resident education and residency program development (3). It has become clear that the integration of neurosurgical efforts within the local health system amplifies the overall impact of FIENS initiatives by promoting sustainable change through collaborative action in the service of local health system goals. From this point forward, initiatives coordinated by FIENS incorporated local stakeholders and workforce in addition to mechanisms for service delivery, health infrastructure, information management, governance, and funding.

Additionally, FIENS-supported trainees expressed the need for ongoing support in the early stages of their careers. In response, the Foundation expanded its scope to include postgraduate education, evolved, as global health organizations must, understand that lasting impact occurs through teaching, leading to self-sustaining health systems in regions of need.

2. | PRESENT

Although founded in the United States, FIENS is a worldwide organization, an active member of the G4 Alliance, a federation of nearly 70 global organizations that advocate for universal access to safe surgery, obstetrics, trauma, and anesthesia care (4). Stakeholders work together to focus attention on access to surgery as an essential and indivisible part of an adequate health care system. The FIENS Bassett and Clack Family fellowships currently award up to 10 global neurosurgery fellowships each year. These FIENS-endowed funds have supported the training of 23 residents and neurosurgeons from 11 countries since 2016 (Table 1) (5,6). The Bassett fellowship is an international traveling stipend that allows neurosurgeons in low- and middle-income countries (LMIC’s) to travel to neurosurgery training programs in North America for three months of specialized training. Dr. Thar San from Myanmar was a Bassett Fellow with Dr. Jack Rock at Henry Ford Health System. He says, “The fellowship helped improve neurosurgery care in our country” (Figure 1).

TABLE 1. FIENS scholarships from 2016 to the present.

Fellowship	Year	Name
Bassett Fellowship	2016	Thar San
	2016	Pyie Win Htut
	2017	Alex Muhindo
	2017	Ignatius Esene
	2017	Juliet Sekobunga
	2017	Aung Thu SoeMyint
	2017	Myat Naing Tun
	2018	Sein Win
	2018	Aung Thurein Win
	2019	Nang Saw Myat Hnin Aye
	2019	SuMyat Mo
	2019	AdefisayoAyoadeAdekanmbi
	2019	Ahmed Hussein
	2019	Aye Mya Phyu
	2019	EiEiKhaing
	2019	John Stephen Mbwambo
	2019	Rami Darwazeh
	2020	Khalif Abdifatah
	2020	Kashif Mughal
	2020	FortunéGankpé
2020	MianAwais	
Clack Fellowship	2019	ManyandoLubasi
	2020	Mukuye Simon

The Clack Family Fellowship allocates funds to assist trainees with financial need in LMICs in completing the neurosurgical training in their home country or at regional neurosurgical centers; Dr. Simon Mukuye from Uganda was a Clack Fellow in Mulago National Referral Hospital, Uganda (COSECSA). “When I received the (Clack) scholarship, Uganda was coming out of a countrywide lockdown for the first wave of the [COVID-19] pandemic; my wife had lost her job, a repercussion of the lockdown, and life at the time was difficult. I received the scholarship funds in early July 2020, and my academic and family life was immediately changed for the better” (Figure 1).



FIGURE 1. FIENS Fellows: 1a. Dr. Thar San (left) from Myanmar, 2016 Bassett Fellow at Henry Ford Health Systems, 1b. Dr. Simon Mukuye (right) from Uganda, 2020 Clack Fellow at Mulago National Referral Hospital, Uganda (COSECSA).

Other current programs include partnerships between one organization in a high-income country (HIC) with one in an LMIC. These dyads support residency training programs through didactic and skills-based curriculum development, equipment donation, and specialized expertise. Examples of dyads include the Tanzania (Zanzibar)-Neurosurgery Education and Development (NED) collaboration, Myanmar-Henry Ford Health System collaboration, and Bolivia-Solidarity Bridge initiatives (Figures 2 and 3) (7). Some dyads have become predominantly virtual due to the COVID-19 pandemic, allowing progress to continue in global neurosurgery, despite travel restrictions. The new Sudan-FIENS dyad organizes monthly one-hour virtual visiting professor sessions during the local team's weekly case conference. These sessions involve listening to the trainee feedback, experiences, and challenges, followed by a visiting professor presentation and concluding with a presentation of cases for discussion among trainees. The Sudanese American Physicians Association (SAPA) is a project partner to enhance and expand residency training in Sudan in several surgical and critical care specialties.



FIGURE 2. Dr. Jose Piquer and the NED Hospital, Zanzibar, and Tanzania team, performing an emergency operation during the COVID-19 pandemic.



FIGURE 3. Dr. Robert Moser, FIENS Board Member, and local neurosurgery team. San Juan de Dios Hospital in Santa Cruz, Bolivia, after a full day of shared endoscopic transsphenoidal pituitary surgery.

All FIENS projects follow a similar template of situation analysis, priority setting, validation, monitoring, and evaluation. Situational analysis, the first step of this process, is crucial and identifies and engages local and international stakeholders. These include governmental officials, as well as local, regional and national neurosurgical and surgical societies. The program must be locally driven, and FIENS must be invited by local leadership. This requirement often encourages multiple small competing programs of an LMIC to work together for the common good. The development of partnerships based on equity and local ownership fosters sustainability, aligning with the FIENS goal sets for the program to become self-sustaining under the leadership of local stakeholders.

These dyads occur in increasing recognition of globalization value context. Although global collaborations have become common within neurosurgery, the bilateral value of educational interventions between HIC and LMIC partners represents an emerging benefit. HIC partners have much to learn from their LMIC partners. To cite just two examples, progress in pediatric hydrocephalus endoscopic management and high-volume experience with spinal dysraphism have resulted from shared experiences between LMIC's and HIC's (8–10).

Neurosurgical education serves as a sustainable and adaptive tool to reduce the global burden of disease and associated disparities. As existing dyads continue to be refined and newer dyads are developed, their impact must be assessed. In the future, partners in HIC's and LMIC's will have a greater ability to appraise the value of these interventions via direct means, such as expenditures on neurosurgical care, and indirect means, such as expanded access to care and training opportunities.

3. | FUTURE

FIENS has a broad array of initiatives in progress or development to expand access to neurosurgical education for students, trainees, and neurosurgeons worldwide. One recent initiative is establishing the FIENS Global Visiting Professor series, designed to provide longitudinal neurosurgery education and support the FIENS partners and participants global community. Each session will feature a different visiting host to manage the session and a different visiting professor to provide the lecture and respond to questions and comments. Additionally, FIENS is developing virtual fellowships to provide focused education while addressing common barriers to neurosurgical education in LMICs, such as travel costs and clinical access limitations. Fellows will have the opportunity to learn clinical knowledge and practice skills under online guidance from a neurosurgery mentor. Through all its programs, FIENS aims to create a FIENS Global Community to connect neurosurgeons worldwide to foster collaboration in education and clinical care. The unmet need in global neurosurgery is best met through education, and FIENS seeks to provide adaptive templates for global neurosurgery educational initiatives. Current trainees will become the teachers of the future.

4. | ACKNOWLEDGMENTS

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DISCLOSURES:

Drs. Dempsey and Rosseau are on the Board of Directors of the Foundation for International Education in Neurosurgery.

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