

# Brain Disorders in the Developing World: Research Across the Lifespan Program

Program Evaluation 2003-2013



**Fogarty International Center**

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## Executive Summary

Given the wide range of conditions that emerge at various life stages, brain disorders affect people all across the globe. Yet, the prevalence and burden of brain disorders was largely underestimated in the 20<sup>th</sup> century according to a 2001 National Academy of Sciences' Institute of Medicine report<sup>1</sup>. To address this global challenge, the Fogarty International Center and its partners established the *Brain Disorders in the Developing World: Research Across the Lifespan Program* in 2003. Over its first ten years, the program has experienced tremendous success and has resulted in significant scientific advances that have enhanced knowledge of brain disorders in low and middle-income countries (LMICs) and increased brain disorders research capacity across the globe.

The Brain Program is a truly trans-NIH initiative and has successfully catalyzed engagement by many NIH Institutes and Centers with total funding for the program at approximately \$84M.

### Brain Program Objectives

- Support the conduct of basic, epidemiological, clinical, prevention, intervention or health services research in the area of nervous system development, function and impairment throughout life, of relevance to low and middle-income countries (LMICs)
- Build sustainable research capacity related to brain disorders in LMICs

### Number of Awards by Administering Institutes or Centers (FY2003-FY2013)

	R01	R21
NIAAA	1	2
NIA	5	8
NIDA	2	8
NIMH	7	20
NIEHS	2	12
NINDS	10	18
NICHD	8	8
OD	N/A	N/A
FIC	2	43
TOTAL	37	119

### Enhanced Empirical Evidence

Publications allow grantees to share relevant and important research evidence with the brain disorders community and the Brain Program has generated evidence in areas from mental health and substance abuse to peripheral nervous system trauma to gene environmental interactions. To date, **435 peer-reviewed publications** from **249 unique journals**, in addition to **14 books or book chapters** were published with the support of the Brain Program. For a complete list of publications, please see Appendix H.

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<sup>1</sup> Copies of *Neurological, Psychiatric, and Developmental Disorders: Meeting the Challenge in the Developing World* are available for sale from the National Academy Press; call (800) 624-6242 or (202) 334-3313 or visit the NAP home page at [www.nap.edu](http://www.nap.edu).

### **Other Research Outcomes**

The Brain Program has had tremendous success catalyzing research and capacity building related to brain disorders. Importantly many grantees of the program describe how they successfully extended the reach of their Brain Program-funded activities by accessing additional funding. Specifically, 65% of awardees report having submitted applications to other funders for “**spin-offs**” or **new research projects** that were catalyzed or otherwise enabled by the Brain Program. In addition to providing the opportunity to generate more evidence, the numerous examples of spin-off projects illustrate important capacity that has been built by the program as evidenced by the success grantees have had in applying for and securing funding outside of the Brain Program to continue research related to brain disorders.

Important research outputs other than publications were developed with support of the Brain Program. These outputs included **new tools for clinical assessment** in the LMIC context, development and/or evaluation of **new interventions**, and **new lab tools or methods**. These outputs are described in more detail in section 4.2.2 *Other Research Outputs*.

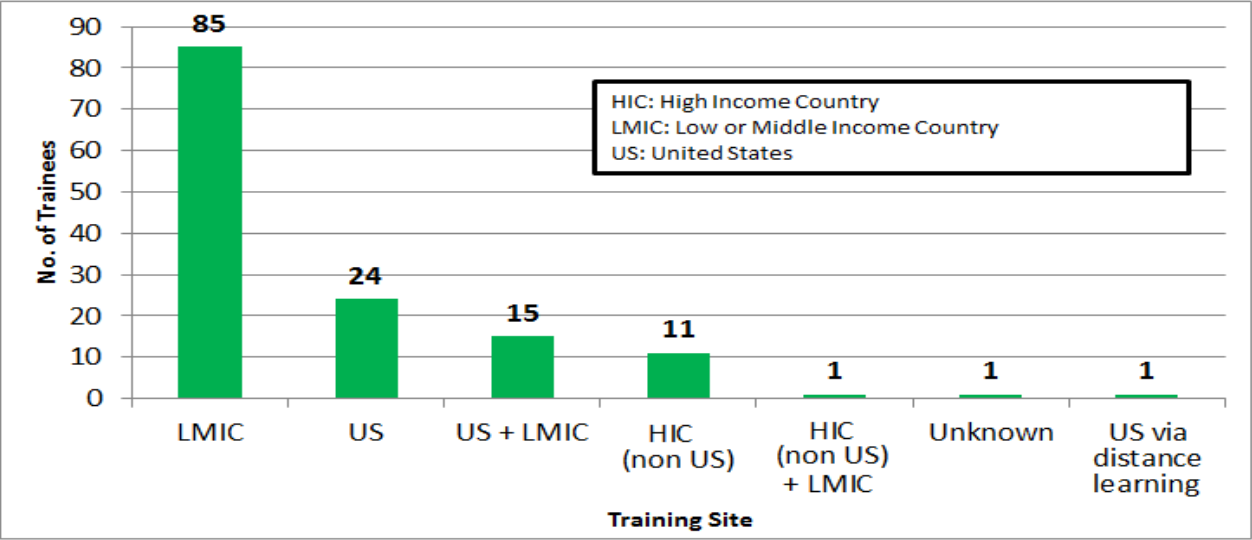
### **Capacity Building**

**Training and mentoring** a robust cadre of brain disorders researchers and strengthening the long-term capacity of LMIC institutions is an integral feature of the Brain Program. The information gathered through this evaluation suggests that trainees ranged from long-term undergraduate students to senior researchers with the majority receiving training and mentoring in a LMIC setting.

Beyond trainees, the LMIC collaborators involved in the Brain Program have been impacted, thus, cultivating a **robust pipeline** for research in brain disorders in the LMIC institutions. Many LMIC collaborators who responded to the Brain Program survey noted that the projects built strong connections between the US and LMIC institutions which inevitably afforded opportunities to build regional and/or international connections, gain new skill, increase the visibility of their research or LMIC institution and aid in a career promotion.

### Example of NIH Funded Spin-Offs

- **Tri-National Training Program in Psychiatric Genetics (D43TW008302):** A research training program in India and Egypt that trains doctoral students while also providing infrastructure development and gene mapping efforts in schizophrenia and bipolar I disorder.
- **Partnerships for Mental Health Development in Sub-Saharan Africa (U19MH098718):** A regional hub for six Sub-Saharan African countries that will train, support and build innovative research capacity as it relates to mental health service development in the region.
- **Role of Calcium Channels in Aging Skeletal Muscle (R03TW08091):** A US and Argentinian research collaboration that explores the cellular and molecular mechanisms responsible for the decline in skeletal muscle performance with aging.



Given the significant burden of brain disorders in LMICs, building local and national capacity to address research and evidence needs is an essential step in combating these diseases. The Brain Program has demonstrated important successes in building this capacity by successfully creating a **global network of researchers** with grantees in more than **45 countries**.





**Research on Alzheimer's in Colombia:** One project in Colombia provided a powerful platform for collaboration between foreign and local scientists, and created opportunities for synergy between basic and clinical research. The Brain Program supported extensive training for senior Colombian collaborators in US laboratories, the establishment of a transgenic mouse colony and infrastructure for laboratory research in Colombia. These capacity-building efforts laid the foundation for a groundbreaking, \$100M clinical trial for Alzheimer's prevention, a critical issue in the country. Major research accomplishments from the project include studies with transgenic mouse models of Alzheimer's that resulted in identification or further refinement of possible targets for gene therapy.

### **Policy and Public Health**

Brain Program activities have informed policies and programs at a national or international level.

Examples include:

- Researchers in Peru established the first surveillance system for retroviral and viral meningoencephalitis.
- A Zambian project identified that a WHO Pharmaceutical Regulatory Authority policy negatively impacted worldwide access to an anti-epileptic drug.
- Research on fetal alcohol syndrome (FAS) spurred the dissemination of information and brought fetal alcohol syndrome to the attention of Russian leadership and key health officials.

**Research on Fetal Alcohol Syndrome in Russia:** One team used findings from their R21 award to develop extensive Russian-language education materials about fetal alcohol syndrome (FAS), including websites for the public and for providers that were the first of their kind. The project helped spur the dissemination of information and bring FAS to the attention of Russian leaders, key health professionals, and offices from the Russian Ministry of Health. A Coordinating Council for Prevention of Harm from Alcohol and FAS was recently established with the aim to promote research and develop services in Russia.

