

DEPARTMENT OF HEALTH AND HUMAN SERVICES
NATIONAL INSTITUTES OF HEALTH
John E. Fogarty International Center (FIC)

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NATIONAL INSTITUTES OF HEALTH

John E. Fogarty International Center

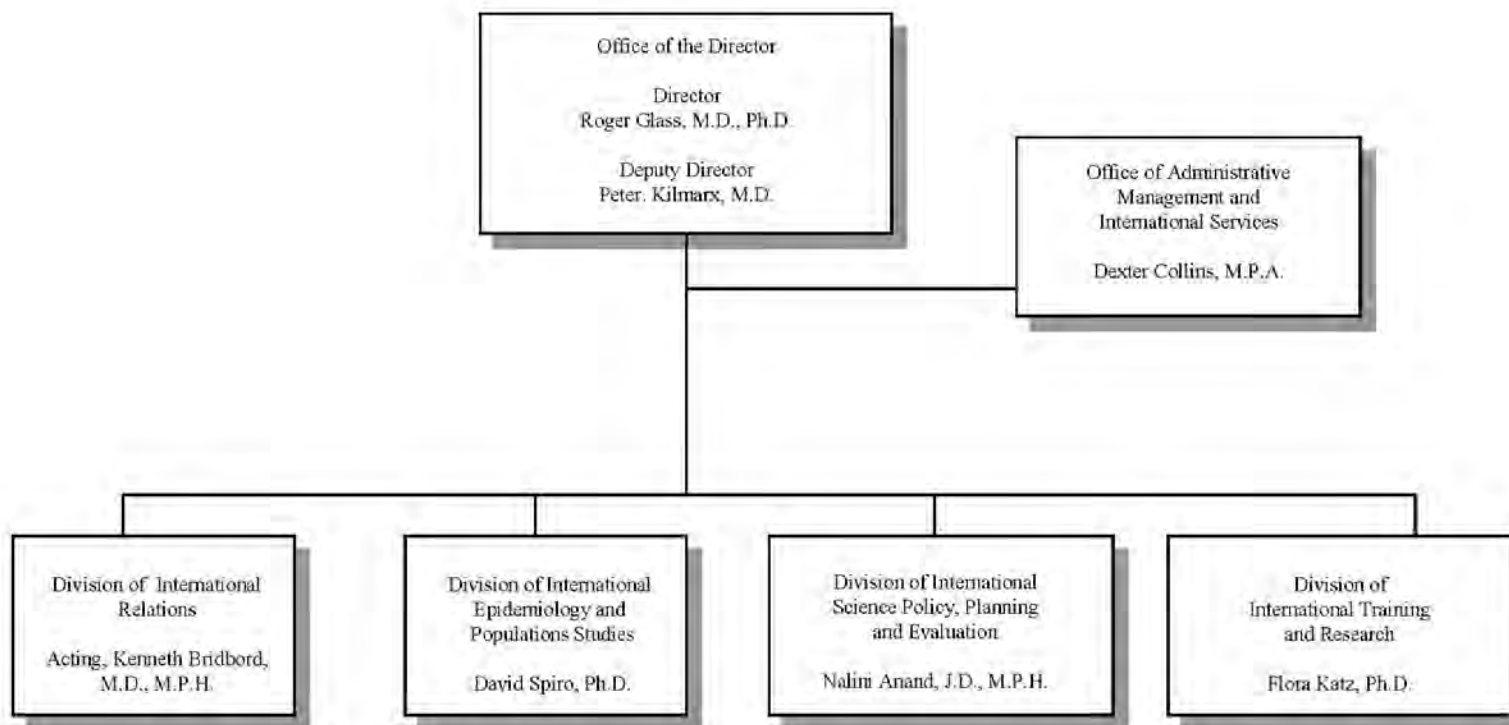


FIG-2

NATIONAL INSTITUTES OF HEALTH

JOHN E. FOGARTY INTERNATIONAL CENTER

For carrying out the activities of the John E. Fogarty International Center (described in subpart 2 of part E of title IV of the PHS Act), \$70,084,000.

**NATIONAL INSTITUTES OF HEALTH
Fogarty International Center**

Amounts Available for Obligation¹
(Dollars in Thousands)

Source of Funding	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Appropriation	\$72,213	\$71,723	\$70,084
Mandatory Appropriation: (non-add)			
<i>Type 1 Diabetes</i>	(0)	(0)	(0)
<i>Other Mandatory financing</i>	(0)	(0)	(0)
Rescission	0	0	0
Sequestration	0	0	0
Secretary's Transfer	-162	0	
Subtotal, adjusted appropriation	\$72,051	\$71,723	\$70,084
OAR HIV/AIDS Transfers	-199	0	0
Subtotal, adjusted budget authority	\$71,852	\$71,723	\$70,084
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	\$71,852	\$71,723	\$70,084
Unobligated balance lapsing	-39	0	0
Total obligations	\$71,813	\$71,723	\$70,084

¹ Excludes the following amounts (in thousand) for reimbursable activities carried out by this account:
FY 2017 - \$11,389 FY 2018 - \$10,957 FY 2019 - \$2,313

Fiscal Year 2019 Budget Graphs

History of Budget Authority and FTEs:

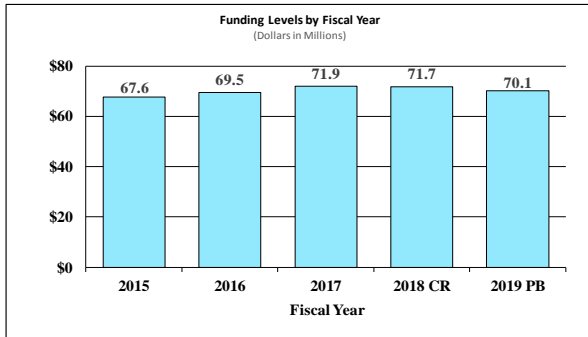


FIG-6

**NATIONAL INSTITUTES OF HEALTH
John E. Fogarty International Center**

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2018 Amount Authorized	FY 2018 Annualized CR	2019 Amount Authorized	FY 2019 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	\$71,723,000	Indefinite	\$70,084,000
International Cooperation	Section 307	42§242I	Indefinite		Indefinite	
John E. Fogarty International Center	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				\$71,723,000		\$70,084,000

**NATIONAL INSTITUTES OF HEALTH
Fogarty International Center**

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2009	\$66,623,000	\$68,905,000	\$68,476,000	\$68,691,000
Rescission				\$0
2010	\$69,227,000	\$70,780,000	\$69,409,000	\$70,051,000
Rescission				\$0
2011	\$73,027,000		\$72,914,000	\$70,051,000
Rescission				\$615,089
2012	\$71,328,000	\$71,328,000	\$68,653,000	\$69,754,000
Rescission				\$131,835
2013	\$69,758,000		\$69,969,000	\$69,622,165
Rescission				\$139,244
Sequestration				(\$3,494,554)
2014	\$72,864,000		\$72,380,000	\$67,577,000
Rescission				\$0
2015	\$67,776,000			\$67,786,000
Rescission				\$0
2016	\$69,505,000	\$68,627,000	\$70,944,000	\$70,447,000
Rescission				\$0
2017 ¹	\$70,117,000	\$72,141,000	\$73,026,000	\$72,213,000
Rescission				\$0
2018		\$73,353,000	\$74,380,000	\$71,723,000
Rescission				\$490,399
2019	\$70,084,000			

¹ Budget Estimate to Congress includes mandatory financing.

Justification of Budget Request

John E. Fogarty International Center for Advanced Study in the Health Sciences

Authorizing Legislation: Section 301 and title IV of the Public Health Service Act, as amended.

Budget Authority (BA):

	FY 2017 Actual	FY 2018 Annualized CR	FY 2019 President's Budget	FY 2019 +/- FY 2018
BA	\$71,813,000	\$71,722,601	\$70,084,000	-\$1,638,601
FTE	61	61	61	0

Program funds are allocated as follows: Competitive Grants/Cooperative Agreements; Contracts; Direct Federal/Intramural and Other.

Director's Overview

Global biomedical research helps protect and promote the health of Americans. Infectious diseases like Ebola and Zika have easily traveled across national borders. Devastating diseases formerly found only in other countries are now present in the U.S. Therefore, it is imperative that we train scientists in developing countries to detect pandemics at their point of origin, contain outbreaks, minimize their impact, and prevent or limit the spread of disease to the U.S.

The Fogarty International Center supports research and research training programs for U.S. and low- and middle-income country (LMIC) scientists. These programs are built on long-standing partnerships between U.S. and LMIC academic institutions, and have resulted in international networks of trained researchers poised to collaborate to tackle emerging diseases and the world's most intractable health problems. Fogarty is also an integral component of NIH – training the scientists and strengthening the research infrastructure abroad that NIH relies upon to support vital research.

Fogarty programs extend the reach and competitiveness of U.S. universities where there is high demand for international research opportunities. Currently, Fogarty supports over 500 research and training programs involving 100 universities. Roughly 80 percent of Fogarty grants are awarded to U.S. institutions and all Fogarty awards involve U.S. researchers.

Global Health Security: Through the Global Infectious Diseases (GID) program and a new planning grant program for research training in countries affected by Ebola, Fogarty supports partnerships between institutions in the U.S. and West Africa to design training programs that will strengthen local scientific expertise, train leaders, and link them to global research networks so they are better prepared to rapidly address the next outbreak and prevent its spread to the U.S. and other countries.

Scientists in Brazil and Mexico, initially trained with Fogarty support for research on diseases such as dengue and Chagas, were quickly able to redirect their skills to understanding and controlling the emerging threat from Zika. Researchers in Brazil applied their experience with Chagas disease to understanding how Zika impacts the brain, while researchers in Mexico determined why some insecticides used in Brazil and the U.S. were ineffective at controlling the spread of mosquitos carrying the virus.

Fogarty-supported scientists (including an in-house, specialized team) develop and use advanced computational models to study the emergence, evolution, and transmission of pathogens to help predict future pandemics, provide actionable information early in outbreaks, and protect the U.S. population from these threats. For example, Fogarty-supported scientists recently modeled the global migration of Ebola and Zika viruses and their potential for causing large outbreaks in the U.S. They have also studied the transmission dynamics and evolution of influenza viruses in humans, domestic animals, and migratory birds to help predict future pandemics.

Fostering a Diverse and Talented Biomedical Research Workforce: Many health challenges facing Americans are most effectively addressed through research conducted in a global context, where diseases are often highly prevalent or where the study of unique genetic predispositions can inform how we detect and prevent certain diseases that affect U.S. citizens.

Key scientific discoveries in HIV/AIDS treatment and prevention have been made by Fogarty-supported investigators, including interventions to reduce mother-to-child transmission of HIV, prevention of new HIV infections using microbicides, novel approaches to address HIV/TB coinfection, and understanding how the HIV virus manufactures antibodies – knowledge that could be critical to vaccine development. Fogarty trainees helped lead a groundbreaking clinical trial which found that providing antiretroviral treatment as soon as an individual is diagnosed with HIV cuts the risk of transmission to an uninfected partner by more than 90 percent. This finding now underpins HIV treatment and prevention protocols in the U.S. and the world.

Columbia is home to the largest known family with an inherited, early-onset form of Alzheimer's. Testing new therapies on healthy individuals who are at a high risk for the disease, like those in this family, might provide valuable clues for understanding how to prevent it. Members of this family are now participating in a trial to determine if a drug provided by a U.S.-based company can stave off the decline in memory and brain function associated with the disease. Fogarty-supported research training helped to build a strong neuroscience research community in Colombia, which set the stage for this potentially game-changing research.

Malaria research is important to Americans traveling abroad, especially military service members. Fogarty has funded or administered nearly 900 training grants related to malaria, providing researchers with the tools and knowledge they need to conduct high-priority research. Now, several of these researchers are leading major NIH-funded Centers of Excellence on malaria research.

Harnessing Low-Cost Technologies to Improve Health in the U.S. and Abroad: A mobile health tool conceived by a Fogarty grantee for HIV patient care in Uganda is now fighting disease, tackling the opioid epidemic, and lowering health care costs across the U.S. A U.S.-based company is now using the app to help patients use their phones to adhere to strict medication regimen, at lower cost, for conditions like opioid addiction, tuberculosis, and hepatitis C.

Fogarty-supported researchers from the U.S. and Zambia are developing a simple diagnostic test for malaria that uses a few drops of blood and tiny magnetic beads to detect the parasite that causes the disease more accurately than currently available tests. This new, inexpensive test improves malaria detection and reduces drug resistance by treating only those who harbor it instead of blanket-treating anyone with a fever, which commonly occurs in malaria-endemic countries. The research teams are now exploring how this technology could be used for high-sensitivity HIV diagnostics.

Fogarty-trained scientists have developed several other low-cost technologies with the potential for impact in the U.S. For example: using ultraviolet light in ceiling fixtures to stop the spread of airborne diseases in crowded buildings like hospitals and prisons; improving child pedestrian safety through virtual reality; and developing a point-of-care diagnostic for bacterial infections to help reduce antibiotic resistance.

Program Descriptions and Accomplishments

Sustainable Development of Human Resources for Global Health Research: Breakthrough scientific advances in global health are built upon a foundation of well-trained researchers, over 6,000 to date, from both the U.S. and LMICs, who collaborate to solve major global health problems. Investing in the best and brightest minds, and catalyzing research and training partnerships between talented U.S. and LMIC scientists, continues to be a high priority. Well-trained LMIC researchers bring an understanding of the unique biological, epidemiological, social, and cultural contexts of their communities, thereby contributing this knowledge to research on health challenges that often have broader, global implications.

Program Portrait: Global Health Program for Fellows and Scholars

In response to a dramatic increase in demand for international research experience, Fogarty supports early-career scientists from the U.S. and from low- and middle-income countries (LMICs) in a wide range of health and related fields to spend one year in mentored training on research projects in LMICs. In partnership with other NIH Institutes, Centers, and Offices (ICOs), Fogarty provides junior investigators with hands-on research experience that enables them to understand the diverse health challenges and opportunities of working in low-resource settings. Through these programs, scientists learn how to approach health problems collaboratively with local researchers who have a unique understanding of contextual complexities. Many of these individuals build lasting professional relationships with their U.S. and LMIC partners and continue to collaborate with them throughout their careers.

Since 2004, Fogarty's Global Health Program for Fellows and Scholars has provided research training for nearly 1,000 Fellows (postdocs and MDs) and Scholars (current PhD and MD students). This support affords these junior investigators with the knowledge and skills to help launch their careers in global health research. Together, these students have published over 1,200 peer-reviewed publications in a wide range of health sciences such as public health, medicine, nursing, dentistry, pharmacy, veterinary medicine, and more. Importantly, the program engages with experts in diverse medical specialties such as cardiology, ophthalmology, kidney disease, and mental health, which are scarce and critically needed in LMICs. From 2012-2017, the program supported five consortia that included a total of 20 U.S. universities and their counterparts in LMICs. In FY 2017, Fogarty awarded six new consortia involving 24 U.S. universities and more than 60 foreign collaborating institutions. Seventeen NIH ICOs have partnered with Fogarty to support the program, which addresses the early phases of the career development pipeline, and therefore trains scientists who would likely apply for funding from a wide range of ICOs in the future.

With support from the Fellows and Scholars program, one investigator and her team at the University College Hospital in Ibadan, Nigeria studied potential genes behind juvenile-onset open-angle glaucoma. This form of glaucoma is prevalent throughout West Africa, allowing her to tap into a larger pool of patients than would be possible in the U.S. The team collaborated with mentors from the University of California at Los Angeles, and their work on the genetic causes highlighted the critical importance of early detection of the disease. In Zambia, the Fellows and Scholars program allowed investigators to conduct research on how antioxidants ward off cell-damaging oxidative stress, which is believed to be a cause of cancer. Through these experiences, researchers were also exposed to the immense challenges that scientists in LMICs face, such as delivering and receiving laboratory results in a timely manner – a service that is typically done with ease in the U.S. The program provided valuable research experience as well as understanding of LMIC contexts for junior investigators, helping prepare them to apply for further grants to continue to conduct crucial research on cancers in both the U.S. and abroad.

International Collaborative Research: Fogarty-supported research collaborations between U.S. and LMIC scientists make U.S. academic institutions more globally competitive, extend their reach, and enable U.S. scientists to lead and participate in international research teams that address key global health priorities. These partnerships also lead to more robust solutions to global health problems, as the respective strengths and expertise of local and U.S. scientists are brought to bear on complex challenges. Whether the focus is international collaborative research on disorders and diseases of the brain and nervous system, or the prediction and containment of emerging infectious diseases, discoveries and evidence generated by these projects have implications for U.S. populations.

Program Portrait: Global Brain and Nervous System Disorders Research across the Lifespan

Fogarty launched the Global Brain and Nervous Systems Disorders Research across the Lifespan (Global Brain) Program in 2002. This program supports cutting-edge research in LMICs on nervous system development, function, and impairment throughout life – research that could lead to new diagnostics, prevention, and treatment strategies for people worldwide. Since its inception, Global Brain has been reissued nearly every year, providing over \$85 million to fund nearly 200 projects. The program allows U.S. investigators to gain experience working in LMICs, expanding the research workforce in these settings by developing long-lasting international partnerships and collaborations. This global research network spans over 45 countries and has contributed to the creation of new interventions, new tools for clinical assessment, and new laboratory methods, among many other outcomes.

Hydrocephalus – excessive accumulation of fluid in the brain – is one of the most common birth defects in the U.S., affecting one out of every 500 births. It is the most common reason for brain surgery in children, with shunting procedures accounting for approximately \$100 million in health care spending in the U.S. – half of this on shunt revisions. The traditional treatment for hydrocephalus is the surgical placement of a shunt, which requires follow up and monitoring. Shunts often involve complications like mechanical failure, obstruction, and infection, which can be particularly hazardous in LMICs. Shunts are even difficult to manage in high-income countries; trials in North America reported a failure rate of more than 40 percent within three years of shunt placement. To address this problem, Global Brain-supported researchers working in Uganda developed and validated a new treatment for infant hydrocephalus. They combined endoscopic third ventriculostomy and choroid plexus cauterization (ETV/CPC) into one cost-effective treatment, where a small hole drains fluid from the brain and heat is applied to brain tissue to reduce the amount of fluid. Both procedures have been practiced separately, but scarce medical expertise and health resources in Uganda inspired researchers to combine the two practices. This combination treatment has been very effective and has helped to avoid shunt dependence in most Ugandan infants treated for this condition. Due to the project's success, the use of ETV/CPC treatment has expanded and is now being practiced in the U.S.

Opiate addiction is a significant public health problem here in the U.S. and globally. Supported by the National Institute on Drug Abuse and Fogarty, American and Bulgarian researchers identified a unique cohort of drug users in Bulgaria (due to being a key transit country for heroin trafficking and a major European center for production of amphetamine-type stimulants). This rare population is predominantly monosubstance-dependent, with many in protracted abstinence. Researchers conducted a comprehensive characterization of impulsivity in relatively “pure” users of opiates and stimulants and found that different mechanisms underlie impaired decision-making of opiate and stimulant users. This research may help decipher some of the neurocognitive and genetic risk factors associated with drug addiction in the U.S. and reveals important differences between chronic users of different classes of drugs.

Research Capacity Strengthening: The development of effective measures to address shared health challenges requires a critical mass of U.S. and LMIC institutions that can conduct robust research and train the next generation of scientists to solve complex problems. Strong institutions that can conduct health research and train scientists in a wide range of disciplines are critical to finding solutions and to building the research workforce of the future. These institutions can stimulate innovative and multidisciplinary research, generate effective and implementable solutions, and build a nimble and networked research workforce.

Program Portrait: Emerging Epidemic Virus Research Training for West African Countries with Widespread Transmission of Ebola

Emerging epidemics such as Ebola demand a critical mass of in-country scientists with relevant research expertise and skills, which enables countries to better combat and prevent disease outbreaks from crossing their borders. This is illustrated by contrasting situations in Sierra Leone and Mali. When initial cases of Ebola spread to both countries, the response was very different. While Sierra Leone experienced a massive public health crisis that required emergency care from around the world and resulted in almost 4,000 deaths, Mali quickly identified and contained their cases, thereby preventing the spread of Ebola around the country. Over the past 15 years, Mali has been awarded five Fogarty training grants that have produced dozens of scientists trained in emerging infectious diseases and helped establish a Master of Public Health degree program in the country. This human resource development contributed to Mali's ability to manage the Ebola cases coming from its neighbors in a timely and effective manner.

In 2016, recognizing the need to invest in research training in Ebola-infected countries, Fogarty initiated the Emerging Epidemic Virus Research Training for West African Countries with Widespread Transmission of Ebola program. These grants fund collaborations between U.S. and African research institutions in Guinea, Liberia, and/or Sierra Leone to plan research training and capacity building programs for the Global Infectious Disease Research Training Program (GID), with a focus on emerging viral epidemics. This support enables scientists on the front lines in these countries, which were ground zero for Ebola, to design training programs that increase expertise in Ebola, Lassa fever, and other emerging viral diseases. These efforts will strengthen the skills needed for early identification, transmission prediction and modeling, conducting clinical trials and laboratory work, biosecurity regulations, public health response testing, and assessing long-term health effects of emerging viral diseases that have the potential for regional and global pandemics.

For example, Yale University, in partnership with the University of Liberia, will develop the organizational structure, curriculum, and research mentorship opportunities for a public health training program with a specific focus on predictive transmission modeling and epidemiological research. Through a needs assessment with policymakers, community change agents, and other stakeholders in Liberia's health sector, researchers will ensure that these research training activities meet the country's health priorities associated with emerging epidemic viral diseases.

In addition, Fogarty has awarded a planning grant to Tulane University, the Vanderbilt Institute for Global Health, and the University of Sierra Leone. Together, these institutions will advance clinical and translational health services research focused on efficacy studies of novel and existing therapeutics for endemic viral hemorrhagic fevers like Lassa fever, while simultaneously building capacity on how to conduct higher-level clinical trial research during an epidemic like Ebola. Over time, this work will lead to the ability to conduct the independent, infectious disease research needed to address viral diseases as they emerge, thereby preventing future epidemics.

Another grant was awarded to a collaboration the University of Conakry in Guinea and Mali's University of Science, Technique, and Technologies of Bamako to advance academic programs and strengthen clinical and health services research. Importantly, this partnership builds on the experience of several researchers who were on the frontlines of the Ebola epidemic and draws on expertise from NIH's National Institute of Allergy and Infectious Diseases (NIAID), Johns Hopkins University, and Northwestern University.

Research Management and Support (RMS): RMS provides administrative, budgetary, logistical, and scientific support to review, award, and monitor research grants, training awards, and contracts. It encompasses strategic planning, coordination, and evaluation of FIC's programs; regulatory compliance; international coordination; international science policy; and liaisons with other Federal agencies, Congress, and the public. Specific functions include an in-house epidemiology program performing mathematical modeling of infectious diseases; international program officers developing partnerships between U.S. scientists and institutions and their counterparts abroad to advance scientific research and training; identification of collaborative opportunities with foreign science funding agencies; support for all NIH

international travel by issuing and tracking official government passports and international visas; review and approval of Notice of Foreign Travel requests; and the creation and coordination of office travel cables to U.S. Embassies.

**NATIONAL INSTITUTES OF HEALTH
Fogarty International Center**

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2017 Final			FY 2018 Annualized CR			FY 2019 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of International Epidemiology and Population Studies									
Direct:	3	-	3	3	-	3	3	-	3
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	3	-	3	3	-	3	3	-	3
Division of International Relations									
Direct:	6	-	6	6	-	6	6	-	6
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	6	-	6	6	-	6	6	-	6
Division of International Science Policy, Planning and Evaluation									
Direct:	8	-	8	8	-	8	8	-	8
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	8	-	8	8	-	8	8	-	8
Division of International Training and Research									
Direct:	12	-	12	12	-	12	12	-	12
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	12	-	12	12	-	12	12	-	12
Office of Administrative Management									
Direct:	16	-	16	16	-	16	16	-	16
Reimbursable:	-	-	-	-	-	-	-	-	-
Office of Administrative Management Reimbursable:	-	-	-	-	-	-	-	-	-
Office of Administrative Management Total:	16	-	16	16	-	16	16	-	16
Office of the Director									
Direct:	14	2	16	14	2	16	14	2	16
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	14	2	16	14	2	16	14	2	16
Total	59	2	61	59	2	61	59	2	61
Includes FTEs whose payroll obligations are supported by the NIH Common Fund.									
FTEs supported by funds from Cooperative Research and Development Agreements.	0	0	0	0	0	0	0	0	0
FISCAL YEAR	Average GS Grade								
2015	11.9								
2016	11.7								
2017	12.0								
2018	12.0								
2019	12.0								

**NATIONAL INSTITUTES OF HEALTH
Fogarty International Center**

Detail of Positions¹

GRADE	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Total, ES Positions	0	0	0
Total, ES Salary	0	0	0
GM/GS-15	7	7	7
GM/GS-14	16	16	16
GM/GS-13	9	9	9
GS-12	7	7	7
GS-11	3	3	3
GS-10	0	0	0
GS-9	2	2	2
GS-8	1	1	1
GS-7	7	7	7
GS-6	0	0	0
GS-5	1	1	1
GS-4	0	0	0
GS-3	1	1	1
GS-2	0	0	0
GS-1	0	0	0
Subtotal	54	54	54
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	2	2	2
Senior Grade	1	1	1
Full Grade	0	0	0
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	3	3	3
Ungraded	4	4	4
Total permanent positions	57	57	57
Total positions, end of year	61	61	61
Total full-time equivalent (FTE) employment, end of year	61	61	61
Average ES salary	0	0	0
Average GM/GS grade	12.0	12.0	12.0
Average GM/GS salary	108,766	108,766	108,766

¹ Includes FTEs whose payroll obligations are supported by the NIH Common Fund.