DEPARTMENT OF HEALTH AND HUMAN SERVICES

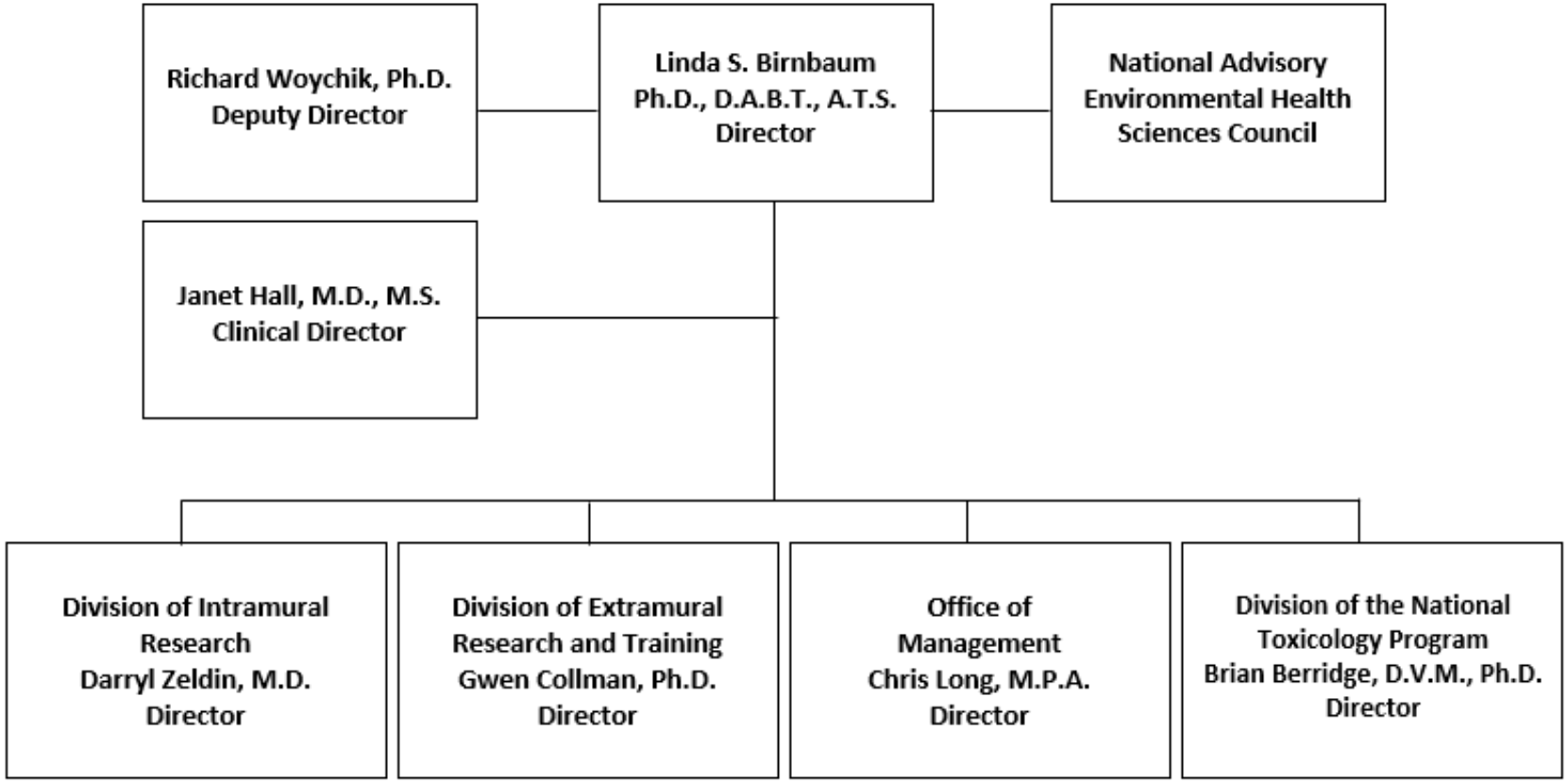
NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences (NIEHS)

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences

Organization Structure



NATIONAL INSTITUTE OF ENVIRONMENTAL HEALTH SCIENCES

For carrying out section 301 and title IV of the PHS Act with respect to environmental health sciences, $693,199,000.

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

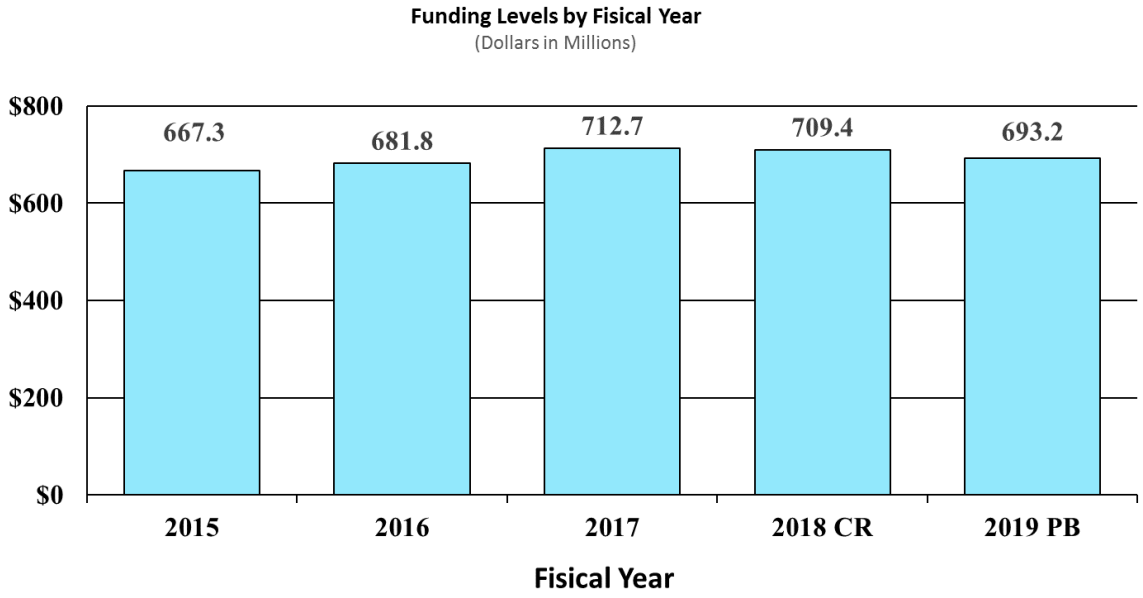
Amounts Available for Obligation[1]
(Dollars in Thousands)

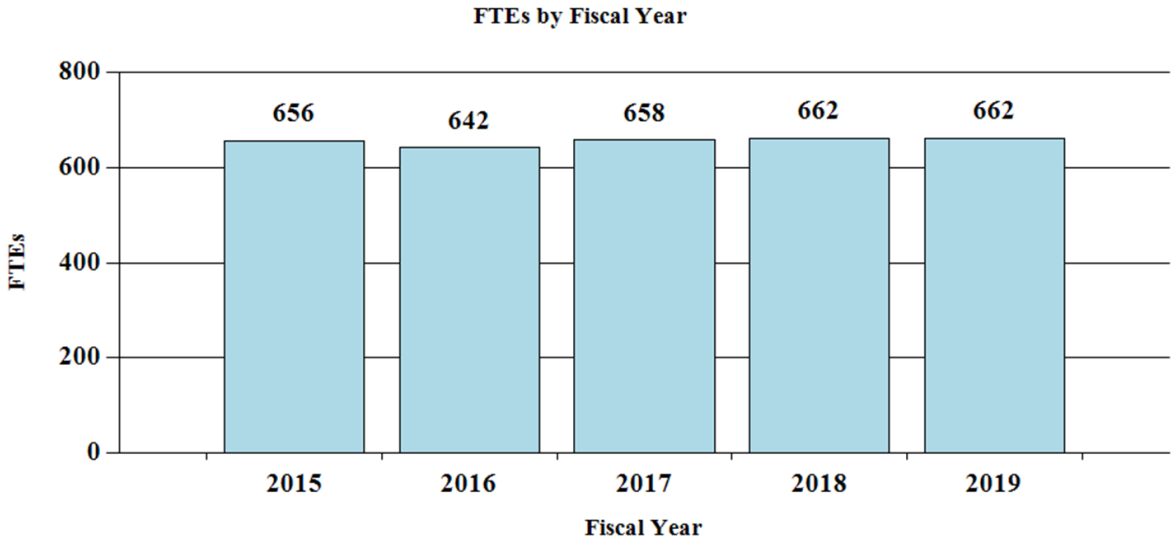
Source of Funding	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Appropriation	$714,261	$714,261	$693,199
Mandatory Appropriation: (non-add)			
Type 1 Diabetes	*(0)*	*(0)*	*(0)*
Other Mandatory financing	*(0)*	*(0)*	*(0)*
Rescission	0	-4,851	0
Sequestration	0	0	0
Secretary's Transfer	-1,592		
Subtotal, adjusted appropriation	$712,669	$709,410	$693,199
OAR HIV/AIDS Transfers	0	0	0
Subtotal, adjusted budget authority	$712,669	$709,410	$693,199
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$712,669	$709,410	$693,199
Unobligated balance lapsing	-147	0	0
Total obligations	$712,522	$709,410	$693,199

[1] Excludes the following amounts for reimbursable activities carried out by this account:
FY 2017 - $7,107 FY 2018 - $7,125 FY 2019 - $5,001

Fiscal Year 2019 Budget Graphs

History of Budget Authority and FTEs:





NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

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	$709,410,454	Indefinite	$693,199,000
National Institute of Environmental Health Sciences	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$709,410,454		$693,199,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2009	$642,875,000	$664,980,000	$660,767,000	$662,820,000
Rescission				$0
Supplemental				$3,416,000
2010	$684,257,000	$695,497,000	$683,149,000	$689,781,000
Rescission				$0
2011	$707,339,000		$706,227,000	$689,781,000
Rescission				$6,057,112
2012	$700,537,000	$700,537,000	$676,033,000	$686,869,000
Rescission				$1,298,182
2013	$684,030,000		$686,103,000	$685,570,818
Rescission				$1,371,142
Sequestration				($34,410,941)
2014	$691,348,000		$686,753,000	$665,439,000
Rescission				$0
2015	$665,080,000			$667,502,000
Rescission				$0
2016	$681,782,000	$675,783,000	$695,900,000	$693,702,000
Rescission				$0
2017[1]	$693,533,000	$710,387,000	$722,301,000	$714,261,000
Rescission				$0
2018	$533,537,000	$725,387,000	$737,727,000	$714,261,000
Rescission				$4,850,546
2019	$693,199,000			

[1] Budget Estimate to Congress includes mandatory financing.

Justification of Budget Request

National Institute of Environmental 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	$712,669,000	$709,410,454	$693,199,000	-$16,211,454
FTE	658	662	662	0

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

Director's Overview

The environment is an important part of everyone's health, and the mission of National Institute of Environmental Health Sciences (NIEHS) is to provide the scientific foundation for understanding how the environment influences the development and progression of human disease. Environmental exposures continue to create risks to U.S. public health. The existence of these risks was reinforced by recent hurricanes, which flooded toxic waste sites, and wildfires, which exposed residents of affected communities to noxious air pollution. But as highly visible and widely impactful as natural disasters are, a wide range of other risks reminds us that the risk of harmful exposures and their consequences for health is ever-present. Each of these risks alone is a complex challenge; combined they pose significant obstacles to the health and well-being of U.S. communities and to the economic vitality of the nation. NIEHS is the leading supporter of research to understand these challenges, which is important both to responding to them and to preventing future harmful effects. We know that improving the general health status of an individual or a community creates an ability to withstand and recover from future health impacts. Through innovative training programs, we nurture a workforce with diverse expertise, perspectives, and insights; we leverage this workforce through partnerships across disciplines, sectors, and stakeholders so that together we can create a healthier nation—one strong enough not only to survive environmental health risks, but also to respond, overcome, and continue to thrive.

Before we can prevent or respond to health risks, we must understand a complex interaction of factors, which includes the situation that may bring people into contact with a hazard, thus presenting a risk; the means by which an exposure may cause or contribute to a health outcome; and the effect of a person's individual susceptibility to a particular exposure that may make them vulnerable to or resilient against such outcome. A recent study that connects the occurrence of drought to increased risk of mortality and cardiovascular disease among older adults, particularly in areas where droughts were previously less common, illustrates how basic research informs

understanding of exposures.[1] Similarly, a study of people's exposures to chemical dispersants used to clean up the Deepwater Horizon oil spill found associations with a number of health effects, including burning in the eyes, nose, throat, and lungs, and tightness in the chest. Although associations were strongest near the time of exposure, some remained between one to three years later.[2] The ability to collect data and conduct research during the critical period immediately following catastrophic events such as this one is enhanced by the NIH Disaster Research Response (DR2) program, the national framework for research on the medical and public health aspects of disasters and public health emergencies. Most recently, DR2 provided research tools and launched time-sensitive funding for research related to exposures and health outcomes resulting from the 2017 hurricanes.

Effects of the environment begin in early life and continue throughout the lifespan. In October 2017, NIEHS co-hosted a workshop with the National Institute on Aging to advance the basic science of telomeres into the realm of clinical and translational research, where they may act as sentinels for environmental exposures, psychosocial stress, and disease susceptibility. Telomeres are the caps on the ends of chromosomes that shorten each time cells divide. Their length, which is set at least by early childhood and decreases as people age, is associated with cancer, cardiovascular, and neurodegenerative diseases. Scientists believe that research to more accurately measure telomere length, and understand its meaning for exposures and health outcomes, may help lead to interventions and treatments. The importance of identifying environmental interactions in early life is demonstrated by results of a study that modeled infant exposure to PFAS, including through breastfeeding.[3] Investigators found associations of early PFAS exposure with reduced concentrations of vaccine antibodies for tetanus and diphtheria at age five, suggesting that the developing immune system is particularly vulnerable to chemical exposures.

Whether in the aftermath of a disaster or in response to ongoing contamination events, public health is improved if those who may be affected have information about their potential risks and can act on that information. A new prototype, the Digital Exposure Report-Back Interface (DERBI), helps researchers respond to this reality. DERBI uses decision rules to produce personalized reports that include summaries of notable results and comparison graphs of individual results to both study group and benchmark populations, as well as information on sources of exposure, what is known about the chemical's health effects, and ways to reduce contact with it.[4] In addition to meeting ethical concerns, using technology to report back information improves the environmental health literacy of individuals and communities.

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[1] Berman JD, Ebisu K, Peng R, Domenici F, Bell M. Drought and the risk of hospital admissions and mortality in older adults in Western USA from 2000 to 2013: a retrospective study. *Lancet Planet Health.* 2017, Apr;1(1):e17-e25. doi: 10.1016/S2542-5196(17)30002-5, PMID: 29057392.

[2] McGowan CJ, Kwok RK, Engel LS, Stenzel MR, Stewart PA, Sandler DP. Respiratory, dermal, and eye irritation symptoms associated with Corexit™ EC9527A/EC9500A following the Deepwater Horizon Oil Spill: findings from the GuLF STUDY. *Environ Health Perspect*. 2017 Sep 15;125(9):097015. doi:10.1289/EHP1677. PMID:28934097.

[3] Grandjean P, Heilmann C, Weihe P, Nielsen F, Mogensen UB, Timmermann A, Budtz-Jørgensen E. Estimated exposures to perfluorinated compounds in infancy predict attenuated vaccine antibody concentrations at age 5-years. *J Immunotoxicol*. 2017 Dec;14(1):188-195. doi: 10.1080/1547691X.2017.1360968. PMID: 28805477.

[4] Boronow KE, Susmann HP, Gajos KZ, Rudel RA, Arnold KC, Brown P, Morello-Frosch R, Havas L, Brody JG. DERBI: A Digital Method to Help Researchers Offer "Right-to-Know" Personal Exposure Results. *Environ Health Perspect.* 2017 Feb 1;125(2):A27-A33. doi: 10.1289/EHP702. PMID: 28145870; PubMed Central PMCID: PMC5289917.

A new effort at Texas A&M University, the Model Education Networks to Optimize Rural Science (MENTORS) Project, is poised not just to increase science literacy, but also to create a pipeline of students to careers in science, technology, engineering, and health through school-based and field experience career explorations supported by K-12 educator and curricula development.[5] A focus on underserved and under-represented students will help the program engage a diversity of backgrounds and perspectives, and involvement of biomedical, public health, engineering, and educational researchers will help to ensure its success in bringing new talent into the science, technology, engineering, and mathematics (STEM) workforce.

As environmental health challenges become increasingly complex, collaborations of many kinds will be vital to generating knowledge that leads to solutions. The year 2018 marks the 10th anniversary of the Toxicology in the 21st Century (Tox21) Program, a federal science collaboration that continues to create advances in technologies to test chemicals for their potential to harm human health and products to inform policies to protect against such harm. NIEHS is leveraging innovative partnerships among those impacted, those studying, and those responding to environmental disasters, such as one created in response to the 2015 Gold King Mine spill that released arsenic and lead into waterways serving 12 Native American tribes. A broad collaboration of public health officials, academic scientists, tribal leaders, and community members has enabled more effective data collection, improved risk communication, and increased trust in science. Such outcomes demonstrate NIEHS's continued pursuit of science to support a healthier nation through prevention, response, and resilience.

Overall Budget Policy: The FY 2019 President's Budget request is $693.199 million, a decrease of $16.211 million compared to the FY 2018 Annualized CR level. These reductions are distributed across all programmatic areas and basic, epidemiology, and clinical research.

Program Descriptions and Accomplishments

Fundamental Research: NIEHS's program in Fundamental Research investigates the basic biological processes of how our bodies function, and of the pathways and systems that are susceptible to the effects of environmental stressors. This research addresses all levels of biological organization–molecular, biochemical pathway, cellular, tissue, organ, model organism, human, and population–and builds on the knowledge from new tools and techniques that allow us to ask more in-depth questions about the effects of our environment on biological systems.

Children are more vulnerable than adults to environmental exposures, and the prenatal window of development has been shown to be susceptible to adverse health outcomes resulting from exposure. Organophosphate insecticides, including chlorpyrifos and naled, are widely used and have been shown to be toxic to the developing brain. Naled has been used to kill mosquitoes and prevent the spread of Zika virus, which can cause devastating birth defects. NIEHS-funded researchers examined prenatal exposure to organophosphate pesticides in umbilical cord blood and found an association between exposure to naled or chlorpyrifos during pregnancy and

[5] MENTORS Project, Model Education Networks to Optimize Rural Science, http://www.mentorsproject.org. Accessed October 23, 2017.

adverse effects on brain development in infants resulting from these pregnancies, with stronger effects seen in infant girls.[6] This association suggests that the prenatal window of life may be particularly vulnerable to neurotoxic effects of some insecticides and that girls are more susceptible to these effects than boys.

Program Portrait: Powering Research through Innovative methods for Mixtures in Epidemiology (PRIME)

Humans are exposed to a multitude of chemicals at a given point in time and throughout life. The complexity of such chemical mixtures poses challenges to epidemiologists and other environmental health researchers looking to understand the impact of these exposures on people's health. Traditional epidemiological and statistical methods, developed to evaluate a single exposure in relation to a single health outcome, are not sufficient for investigating complex, correlated data on mixtures of exposures that may interact in various ways, both within a person's underlying biology and with each other.

NIEHS supported two expert workshops, in 2011 and 2015, to identify key challenges in mixtures research. The meetings suggested a need to compare existing statistical methods and to identify novel approaches to predict and evaluate the effects of mixtures. Although there are many valid approaches, there are clear data gaps and limitations of such approaches, and the greater the complexity of the data the greater the variability of the results.

In response, NIEHS announced a funding opportunity, Powering Research through Innovative methods for Mixtures in Epidemiology (PRIME), to develop a highly productive, interdisciplinary, and collaborative effort including epidemiologists, statisticians, toxicologists, and related scientists, to focus on mixtures research in the context of health outcomes such as cardiovascular, obesity, diabetes, cancer, reproduction, and neurological endpoints. The goals of the program are to promote collaborative and interdisciplinary research using multiple independent epidemiological populations to advance statistical approaches to mixtures through the comparison of existing methods and the development of new ones.

Exposure Research: This program is focused on the study of environmental exposures, both internal and external; not only chemical environmental pollutants, but also exposures arising from other sources, such as the microbiome and nutritional sources. The program goals are to develop improved methods to detect and measure environmental exposures in humans or other organisms, including biological markers, sensor and detector tools, remote exposures detection, better analytical methods, and informatics technologies.

Four in ten people in the United States live in areas where air pollution levels are unhealthy. Air pollution is associated with adverse health outcomes, including cardiovascular mortality. High-density lipoprotein (HDL) particles play a physiologically important role in protecting cardiovascular health. NIEHS-supported researchers, working with the National Heart, Lung, and Blood Institute-funded Multi-Ethnic Study of Atherosclerosis Air Pollution (MESA) study of 6,654 ethnically diverse men and women, examined the link between exposure to air pollution and HDL levels in the study population.[7] This work found an association between exposure to higher levels of traffic-related air pollution and decreased levels of cardioprotective HDL, suggesting that air pollution may have a negative impact on cardiovascular health, in part, by impacting the HDL biological pathway.

[6] Silver et al. 2017. Prenatal naled and chlorpyrifos exposure is associated with deficits in infant motor function in a cohort of Chinese infants. Env Int. 106:248-256.

[7] Bell G, Mora S, Greenland P, Tsai M, Gill E, Kaufman JD. 2017. Association of air pollution exposures with high-density lipoprotein cholesterol and particle number. Arterioscler Thromb Vasc Biol. 37(5):976-982.

Program Portrait: Population-Based Model Organisms for Gene-by-Environment (GxE) Exploration in Complex Disease

Most human diseases result from a complex interplay of genetic, epigenetic, and environmental factors, making studies of such diseases inherently difficult. New genetically diverse mouse strains, including a set of strains called Collaborative Cross (CC, generated from cross-breeding of eight founder strains of mice) and a random breeding population called the Diversity Outbred (DO), were developed to simulate the genetic diversity found in human populations and overcome some of the limitations in mapping links to complex traits between humans and rodent models. A complementary resource of cells and cell lines derived from the CC and DO strains also enables researchers to perform population-level studies *in vitro*. These powerful new tools, outlined in a 2017 review[8], offer a wide range of potential benefits to GxE studies; for example, enabling researchers to establish biomarkers for biomonitoring (exposures assessment), to predict adverse health effects that may only occur in genetically sensitive individuals (hazard identification), to improve extrapolation of rodent data to humans (dose response), and to identify genetic sequence variations underlying toxicity sensitivity (mode of action), to name a few.

The utility of these model organisms has been shown in studies looking at the safety of candidate drugs including antibiotics and a treatment for African sleeping sickness, investigating the role of genetics in the spread of Ebola, and determining the genetic contributions for many common human diseases. To date, however, such resources have been underutilized in studies exploring environmental health science questions. To stimulate awareness and use of population-based model organisms in this field, NIEHS has launched a call for grant proposals that would establish proof of principle studies for their use in environmental health sciences. The overarching goal is to enable their broad use, particularly to explore genetic susceptibility to environmental exposures, and realize their benefit in understanding—and preventing—complex human diseases.

Translational Research and Special Populations: This program includes a wide set of research activities encouraging integration of clinical, population, and community-based research to translate findings into improved public health practice and disease prevention. These activities include research investments targeted towards understanding environmental risks to special populations (elderly people, children, and underserved populations) with an eye to developing interventions and solutions to real-world problems.

NIEHS-funded scientists are pushing the translation of basic research findings in human tissue 3-D model systems in the laboratory to real world solutions for testing the effects of chemicals and drugs on the female reproductive system.[9] EVATAR™ is a miniature 3-D model of the ovaries, fallopian tubes, uterus, cervix, and vagina that also mimics human metabolic processes that the liver would maintain in a living person. The power of EVATAR™ lies in the fact that it contains multiple distinct female organs which are able to communicate with one another and closely replicate normal physiological processes, including the menstrual cycle, in addition to maintaining metabolic capabilities that allow the system to break down a chemical into its metabolically active components. Not only will EVATAR aid in chemical and drug safety tests on the dynamic female reproductive tract, but it will also be a useful system to study adverse health outcomes such as endometriosis, infertility, and other reproductive diseases faced by women.

[8] Harrill AH, McAllister KA. New rodent population models may inform human health risk assessment and identification of genetic susceptibility to environmental exposures. Environ Health Perspect. 2017 Aug 15;125(8):086002. doi: 10.1289/EHP1274. Review. PMID: 28886592

[9] Xiao S, et al. A microfluidic culture model of the human reproductive tract and 28-day menstrual cycle. Nat Commun 2017; 8:14584.

Program Portrait: Children's Health Exposure Analysis Resource (CHEAR)

Although research on exposures to children is critical to understanding how environmental factors they encounter may affect their health, both now and later in life, obtaining biological specimens from children is challenging and analyzing them requires tools and methods that aren't widely available. CHEAR provides NIH researchers with access to high-end expertise and laboratory techniques so they can add or expand analysis of environmental exposures to their existing research projects. A consortium of six laboratories, a data center, and a coordinating center offer analysis of specific exposures in specimens, application of metabolomics/exposomic methods to look for signals of exposure, and assessment of molecular markers linking exposures to health-related effects. To date, 13 studies of mothers and children, comprising nearly 32,000 analyses for metals, tobacco, nutrient markers, and non-targeted exposures, have been approved for scientists across NIH.

The initial success of this resource has led to interest in expanding its scope beyond just children's health endpoints to all of human health. Expansion would allow for utilization across the entirety of the NIH research community, maximizing the return on investment in this resource. In addition, analytic support for major trans-NIH studies such as *All of Us* could greatly enhance the potential for discovery, leading to prevention and intervention of disease. Other future partnerships being considered might combine analyses of biological specimens with environmental samples of air, dust, soil, and water, thus providing a more comprehensive understanding of a person's exposures and their resulting impacts on health.

Predictive Toxicology: The mission of the research investment in the National Toxicology Program (NTP) is to evaluate environmental agents of public health concern, and generate information to be used by health regulatory agencies to make informed decisions affecting public health. NTP also works to develop new and improved test methods, including alternatives to animal testing and high-throughput methods to test substances faster, in order to disseminate useful public health information more rapidly. NTP research also helps to develop new and improved models of toxicity that can help to predict cancer and other adverse health outcomes that may result from fetal or early life exposures.

The NTP Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM) is coordinating the development of the *U.S. Strategic Roadmap: New Approaches to Evaluate the Safety of Chemicals and Medical Products* to serve as a blueprint for federal agencies and stakeholders to use when developing new methods for evaluating safety and performing risk assessment. These efforts are imperative for successfully replacing, reducing, and refining animal use in chemical and medical product safety evaluation. The goal of this Roadmap is to provide a national strategy for toxicity testing through a generalized framework that can be widely-used to support development, evaluation, and utilization of new methods. In addition, the Roadmap will provide an avenue for information sharing and will promote collaboration within and between government agencies and stakeholders, and a platform to facilitate international harmonization. Scientific working groups have developed both an implementation and communication plan of the Roadmap, setting the stage for translational impact that would employ more efficient and effective test strategies. The Roadmap will fuel the use of 21st century science to protect and improve public health.

Training and Education: This program's goal is to attract the brightest students and scientists into the environmental health sciences field to ensure a cadre of professionals to conduct the interdisciplinary research necessary to solve critical environmental health problems. The

program includes efforts at the high school and undergraduate levels (opportunities for laboratory-based training), the graduate level (institutional training grants and individual fellowships), and the faculty level (grants for young investigators).

The Ruth L. Kirschstein National Research Service Award (T32) funding program is a component of NIEHS efforts to invest in the next generation of environmental health research scientists by supporting predoctoral and/or postdoctoral training. T32 funding defrays the cost of stipends and tuition support for awardees and provides high caliber research training to future talent resulting in impactful research findings. T32-trained students contribute to important science, including a recent pilot human intervention trial, which found that B-vitamin supplementation reduced the effects of air pollution exposure in healthy adults.[10] This novel prevention approach may counteract the adverse effects resulting from air pollution exposure, which contributes to 3.7 million premature deaths annually. T32-trained students participated in a different research project that examined the link between preterm birth, the predominant cause of neonatal deaths, and the mother's cervical mucus plug integrity and found the overall permeability of the plug affects its function.[11] This work allowed the identification of permeability markers that may serve to screen pregnant women for increased risk of preterm birth, allowing for close monitoring of the pregnancy and ultimately preventing neonatal deaths.

Intramural Research: NIEHS intramural programs provide an in-house research arena focused on high-caliber science with high-impact breakthroughs. NIEHS intramural research studies are often long-term and comprise unique components, such as NIEHS's contribution to the NTP through its Division of the National Toxicology Program, epidemiological studies of environmentally associated diseases and exposures (including the study of individuals exposed by the 2010 Deepwater Horizon Oil Spill), and intervention and prevention studies to reduce the effects of exposures to hazardous environments. The NIEHS Clinical Research Unit provides opportunities for clinical and basic scientists in the intramural programs to collaborate and learn how environmental exposures influence human health and disease.

NIEHS intramural scientists have challenged the longstanding idea that females are developmentally the "default" sex in provocative research that used a genetic mouse model to show that sex determination is not due to the presence of androgen, long thought to be the male sex determining factor.[12] Instead, a protein called COUP-TFII is the driving signal that instructs the embryo to eliminate male structures if it is female. This exciting new research has provided key mechanistic insight into the molecular details of sex determination and may guide future clinical studies that aim to understand human reproductive disorders and rare diseases such as infants born intersex with both male and female components of the reproductive system.

[10] Zhong et al. 2017. B-vitamin supplementation mitigates effects of fine particles on cardiac autonomic dysfunction and inflammation: a pilot human interventional trial. Sci Rep. 7:45322.
[11] Smith-Dupont et al. 2017. Probing the potential of mucus permeability to signify preterm birth risk. Sci Rep. 7(1):10302.
[12] Zhao F, Fanco HL, Rodriguez KF, Brown PR, Tsai MJ, Tsai SY, Yao HH. 2017. Elimination of the male reproductive tract in the female embryo is promoted by COUP-TFII in mice. Science. 357 (6352):717-720.

Research Management and Support (RMS)
The RMS program provides administrative, budgetary, logistical, and scientific support in the review, award, and monitoring of research grants and training awards. NIEHS oversaw approximately 816 off-site research grants and centers in FY 2017. Other RMS functions include on-site strategic planning, coordination, and evaluation of NIEHS programs; administration and facilities maintenance; regulatory compliance; ethics training and compliance; and liaison with other Federal agencies, Congress, stakeholders, and the public.

NIEHS is currently in the process of updating the institute's 2012-2017 strategic plan, *Advancing Science, Improving Health: A Plan for Environmental Health Research*. The 2012-2017 plan has worked well as a guide for NIEHS's research priorities. The process for updating the strategic plan calls for input on current scientific ideas and environmental health science needs to help shape the next phase of the institute's work. A draft of the updated strategic plan was posted for comment in January 2018.

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

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 Extramural Research									
Direct:	72	-	72	73	-	73	73	-	73
Reimbursable:	2	-	2	2	-	2	2	-	2
Total:	74	-	74	75	-	75	75	-	75
Division of Intramural Research									
Direct:	326	1	327	328	1	329	328	1	329
Reimbursable:	1	-	1	1	-	1	1	-	1
Total:	327	1	328	329	1	330	329	1	330
Division of National Toxicology Program									
Direct:	107	1	108	108	1	109	108	1	109
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	107	1	108	108	1	109	108	1	109
Office of Management									
Direct:	91	3	94	91	3	94	91	3	94
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	91	3	94	91	3	94	91	3	94
Office of the Director									
Direct:	51	2	53	51	2	53	51	2	53
Reimbursable:	1	-	1	1	-	1	1	-	1
Total:	52	2	54	52	2	54	52	2	54
Total	651	7	658	655	7	662	655	7	662
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	11.8
2016	11.8
2017	11.9
2018	11.9
2019	11.9

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Detail of Positions[1]

GRADE	FY 2017 Final	FY 2018 Annualized CR	FY 2019 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	173,500	176,800	176,800
GM/GS-15	37	37	37
GM/GS-14	58	58	58
GM/GS-13	117	117	117
GS-12	115	116	116
GS-11	80	81	81
GS-10	1	1	1
GS-9	47	47	47
GS-8	13	13	13
GS-7	18	18	18
GS-6	3	3	3
GS-5	0	0	0
GS-4	0	0	0
GS-3	1	1	1
GS-2	0	0	0
GS-1	0	0	0
Subtotal	490	492	492
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	3	3	3
Senior Grade	3	3	3
Full Grade	1	1	1
Senior Assistant Grade	0	0	0
Assistant Grade	0	0	0
Subtotal	7	7	7
Ungraded	179	181	181
Total permanent positions	494	496	496
Total positions, end of year	677	681	681
Total full-time equivalent (FTE) employment, end of year	658	662	662
Average ES salary	173,500	176,800	176,800
Average GM/GS grade	11.9	11.9	11.9
Average GM/GS salary	93,449	95,225	95,225

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