DEPARTMENT OF HEALTH AND HUMAN SERVICES

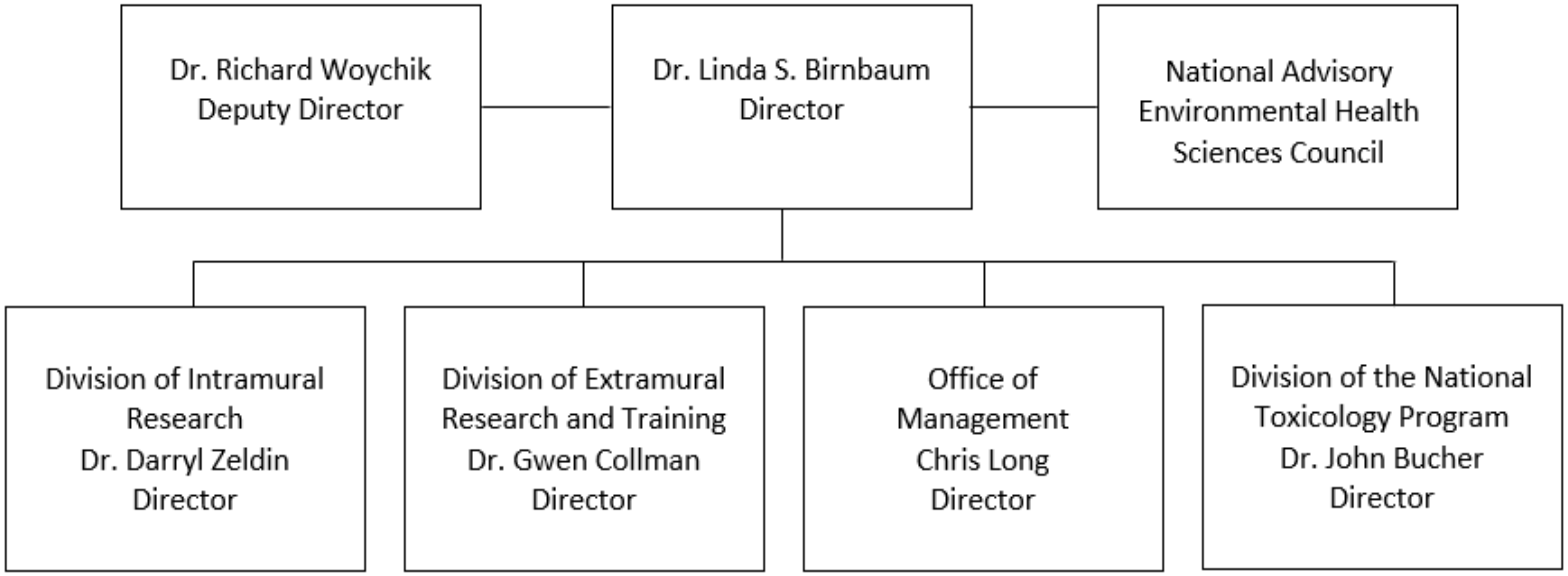
NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences (NIEHS)

NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences

Organization Structure



NATIONAL INSTITUTES OF HEALTH

National Institute of Environmental Health Sciences

For carrying out section 301 and title IV of the PHS Act with respect to environmental health sciences, $533,537,000.

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

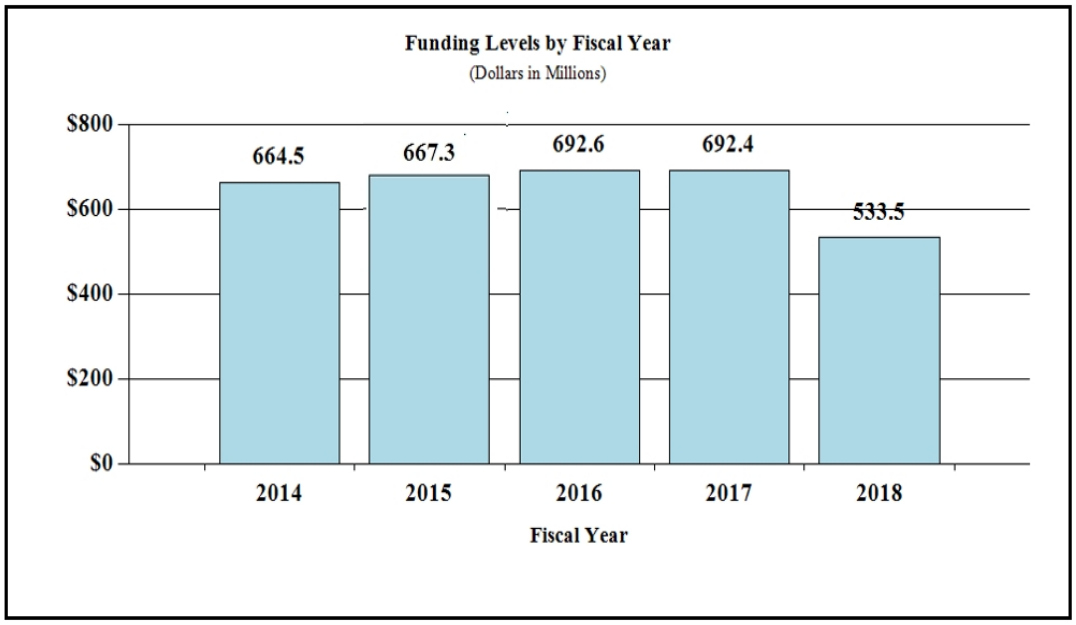
Amounts Available for Obligation[1]
(Dollars in Thousands)

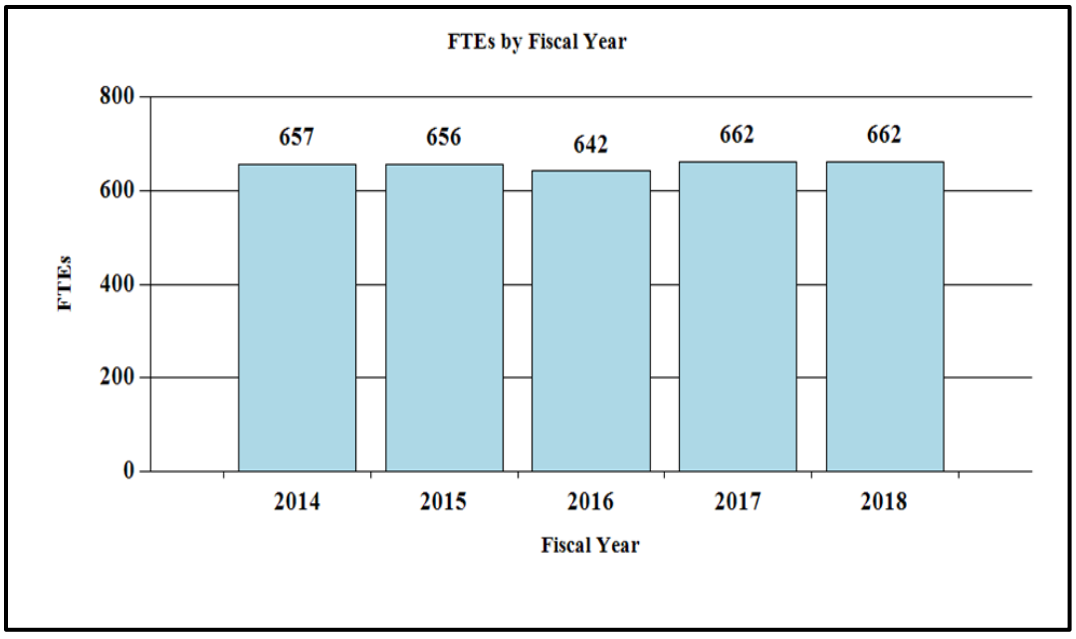
Source of Funding	FY 2016 Final	FY 2017 Annualized CR	FY 2018 President's Budget
Appropriation	$693,702	$693,702	$533,537
Mandatory Appropriation: (non-add)			
Type 1 Diabetes	*(0)*	*(0)*	*(0)*
Other Mandatory financing	*(0)*	*(0)*	*(0)*
Rescission	0	-1,319	0
Sequestration	0	0	0
Zika Intra-NIH Transfer	-960	0	0
Subtotal, adjusted appropriation	$692,742	$692,383	$533,537
OAR HIV/AIDS Transfers	-169	0	0
Subtotal, adjusted budget authority	$692,573	$692,383	$533,537
Unobligated balance, start of year	0	0	0
Unobligated balance, end of year	0	0	0
Subtotal, adjusted budget authority	$692,573	$692,383	$533,537
Unobligated balance lapsing	-95	0	0
Total obligations	$692,478	$692,383	$533,537

[1] Excludes the following amounts for reimbursable activities carried out by this account:
FY 2016 - $5,075 FY 2017 - $5,082 FY 2018 - $3,942

Fiscal Year 2018 Budget Graphs

History of Budget Authority by FTEs:





NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Authorizing Legislation

	PHS Act/ Other Citation	U.S. Code Citation	2017 Amount Authorized	FY 2017 Annualized CR	2018 Amount Authorized	FY 2018 President's Budget
Research and Investigation	Section 301	42§241	Indefinite	$692,383,272	Indefinite	$533,537,000
National Institute of Environmental Health Sciences	Section 401(a)	42§281	Indefinite		Indefinite	
Total, Budget Authority				$692,383,272		$533,537,000

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Appropriations History

Fiscal Year	Budget Estimate to Congress	House Allowance	Senate Allowance	Appropriation
2008	$637,406,000	$652,303,000	$656,176,000	$653,673,000
Rescission				$11,420,000
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	$693,702,000
Rescission				$1,318,728
2018	$533,537,000			

[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 2016 Actual	FY 2017 Annualized CR	FY 2018 President's Budget	FY 2018 +/- FY 2017
BA	$692,573,000	$692,383,272	$533,537,000	-$158,846,272
FTE	642	662	662	0

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

Director's Overview

The National Institute of Environmental Health Sciences (NIEHS) celebrated its 50th anniversary in 2016, and is poised to continue a tradition of innovative biomedical research that provides a trustworthy knowledge base on the effects of the environment on human health. Decades of groundbreaking work has contributed to our understanding that our health is the result of a complex interaction between what we are on the inside (our genes) and what we are exposed to throughout life from the womb to the retirement home. The mission of NIEHS is to conduct, support, and share research that answers questions about this gene-environment interaction, which then can be used to identify interventions to prevent disease, support development of treatments and cures, and inform strategies to promote health across the lifespan.

To these initial categories of "genetics" and "exposures," it is necessary to add "time," or life stage. Over the past several decades, a growing body of research in both the nutritional and environmental health fields has fleshed out the concept of the Developmental Origins of Health and Disease (DOHaD): the idea that environmental influences during periods of development early in life can lead to health consequences across a person's lifespan.[1] NIEHS has made understanding these early-life influences a research priority. For example, a recent study identified several genes as potential clues for understanding how exposure to lead affects children's brains, impairing cognitive development.[2] At the other end of the life stage spectrum, scientists are using older rodents to more effectively understand how exposures can impact the

[1] Heindel JJ, Skalla LA, Joubert BR, Dilworth CH, Gray KA. Review of developmental origins of health and disease publications in environmental epidemiology. *Reprod Toxicol* 2016 Nov 18 http://dx.doi.org/10.1016/j.reprotox.2016.11.011

[2] Wagner PJ, Park HR, Wang Z, Kirchner R, Wei Y, Su L, Stanfield K, Guilarte TR, Wright RO, Christiani DC, Lu Q. In vitro effects of lead on gene expression in neural stem cells and associations between upregulated genes and cognitive scores in children. *Environ Health Perspect*. 2016 Aug 26. PMID:https://www.ncbi.nlm.nih.gov/pubmed/27562236

elderly, a growing and very large segment of the U.S. population. To encourage this research field, NIEHS has helped to establish the U.S. DOHaD Society to promote the exchange of ideas and collaborative science which reduces duplicative research efforts.

The ultimate goal of most NIEHS research is to prevent disease resulting from exposure to harmful aspects of our environment, and the science generated by the Institute frequently points the way toward medical treatments and cures. Parkinson's disease (PD) afflicts the nervous system and affects quality of life for increasing numbers of elderly people. NIEHS scientists, using a mouse model of PD, have uncovered a promising candidate treatment for humans that makes use of an anti-inflammatory enzyme to halt the progression of neurodegeneration in the brain without toxic side effects.[3] NIEHS is also an effective partner with other NIH institutes in tackling diseases resulting from environmental exposures. One example of such a collaboration is the Zika in Infants and Pregnancy (ZIP) study, supported in partnership with NIAID and NICHD, that aims to follow 10,000 pregnant women and their infants in Zika-endemic countries to elucidate the mechanisms of this complicated disease and inform the rapid development of both vaccines and treatments that could mitigate the enormous economic impact in the United States and around the world.

NIEHS efforts are concerned not only with explaining and responding to disease, but also with promoting the health of populations across the spectrums of age, gender, ethnicity, social circumstance, occupation, and other factors. Designing effective methods of promoting health requires an understanding of individual and population vulnerabilities, including risk of harmful environmental exposures. For example, NIEHS has created the Children's Health and Exposure Assessment Resource (CHEAR), an integral part of the NIH Environmental Influences on Child Health Outcomes (ECHO) initiative. Through CHEAR, scientists can access state-of-the-art analytical resources to assess environmental exposures from the womb to the playground and beyond, and potentially translate this picture into interventions that may protect children's health into adulthood. Similarly, a concern for understanding vulnerability among communities overburdened by pollution is the goal of five new Centers of Excellence on Environmental Health Disparities Research. These centers will examine a range of stressors on health across a variety of communities, including indigenous, rural, and urban populations. The centers will use the knowledge gained through these studies to design public health strategies that will reduce harmful environmental exposures, in turn alleviating environmentally-induced health inequities and promoting good health among all Americans.

To achieve its vision of "global leadership for innovative research that improves public health by preventing disease and disability," NIEHS must ensure the public's continued trust in its commitment to good stewardship of the resources entrusted to it. This commitment is demonstrated in every facet of the Institute's business, through strategic planning, review, evaluation, transparency, outreach, and adherence to the highest ethical standards. Good stewardship of research requires attention, not just to economic resources, but also to the development of a top-level research workforce. This is particularly evident in NIEHS strategic

[3] Wang Q, Qian L, Chen SH, Chu CH, Wilson B, Oyarzabal E, Ali S, Robinson B, Rao D, Hong JS. Post-treatment with an ultra-low dose of NADPH oxidase inhibitor diphenyleneiodonium attenuates disease progression in multiple Parkinson's disease models. *Brain*. 2015 May;138(Pt 5):1247-62. PMID: https://www.ncbi.nlm.nih.gov/pubmed/25716193

efforts toward creating and inspiring a diverse and well-trained cadre of scientists to advance transformative environmental health science. The NIEHS Revolutionizing Innovative, Visionary Environmental health Research (RIVER) program will meet this goal by providing sustained funding support for investigators with a proven record of innovative and impactful research, thereby creating the intellectual and administrative freedom for them to pursue their research in novel directions for new discoveries.

Overall Budget Policy:
The FY 2018 President's Budget request is $533.537 million, a decrease of $158.846 million compared to the FY 2017 Annualized CR level. These reductions are distributed across all programmatic areas and basic, epidemiology, or 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, cellular, tissue, organ, model organism, human, and population) and builds on the knowledge gained from new tools and techniques that allow us to ask more in-depth questions about the effects of our environment on biological systems.

The effect of exposures to hazardous environmental agents during key periods of brain development is not well understood. One example where better understanding in this area could inform interventions is schizophrenia, a chronic mental disorder with both genetic and environmental causes. The National Institute of Mental Health estimates that approximately 8 out of 1,000 individuals will develop schizophrenia in their lifetime and the economic costs have been estimated to be at least $32.5 billion in one year.[4] People with schizophrenia suffer from hallucinations, delusions, thought disorders, and/or movement disorders. Symptoms typically begin to occur between the ages of 16 and 30.[5] NIEHS-funded scientists have found strong similarities in the brains of people with schizophrenia and in key brain areas known to be associated with schizophrenia in rats exposed to lead from before birth through adolescence. Rats exposed during these critical periods of brain development also had decreased density of a particular type of nerve cell that plays an important role in cognitive function. This study provides strong evidence that developmental lead exposure in rats can mimic the key neurological changes seen in people with schizophrenia.[6]

[4] Rice DP. The economic impact of schizophrenia. J Clin Psychiatry. 1999;60 Suppl 1:4-6; discussion 28-30.
[5] National Institute of Mental Health. (date). Schizophrenia. Retrieved from https://www.nimh.nih.gov/health/publications/schizophrenia-booklet-12-2015/index.shtml.
[6] Stansfield KH, Ruby KN, Soares BD, McGlothan JL, Liu X, Guilarte TR. 2015. Early-life lead exposure recapitulates the selective loss of parvalbumin-positive GABAergic interneurons and subcortical dopamine system hyperactivity present in schizophrenia. Transl Psychiatry 5:e522.

Program Portrait: The Microbiome

FY 2017 Level: $3.9 million
FY 2018 Level: $3.0 million
Change: -$0.9 million

The microbiome is the collection of microorganisms, such as bacteria, viruses, and fungi that inhabit the human body. This includes microbial populations on the skin, in the nose and mouth, in the urogenital tract, and in the digestive system. The role of the microbiome varies depending on the location in the body and microbes present, but plays a role in the normal functions of the body. Each person's microbiome is unique.

Aspects of our environment can influence the microbiome. NIEHS supports research on the microbiome through various grants, programs, and workshops, including the Center for Children's Health, the Environment, the Microbiome, and Metabolomics (C-CHEM2) at Emory University. This program is the first of the NIEHS-EPA jointly funded Centers for Children's Health and Disease Prevention to study how the microbiome affects preterm birth and infant health. C-CHEM2 aims to examine the relationship between pre- and post-natal environmental exposures, the infant microbiome, and infant neurodevelopment in the metropolitan Atlanta area.

Other NIEHS-supported researchers are examining the association between exposure to heavy metals such as arsenic and effects on the microbiome. For example, exposure to arsenic significantly changes the gut microbiome differently in male and female mice.[7] The gut microbiome may also affect how individuals respond to asthma treatments. Other research is investigating how air pollution interacts with the lung microbiome, potentially affecting how individuals respond to asthma treatments. A thorough understanding of the microbiome will provide important insights into our understanding of human health and disease.

Exposure Research: NIEHS exposure research studies the totality of individual and population environmental exposures, including chemical environmental pollutants, as well as exposures that arise from sources such as the microbiome and diet. The program goals are to develop improved methods to detect and measure environmental exposures in humans, including biological markers, sensors, and detectors such as remote exposure detection, analytical methods, and informatics technologies.

Using one such new analytic approach known as quantitative redox proteomics, NIEHS-funded scientists found that *in vitro* exposure to nanoparticles, including ones considered non-toxic, can cause immune cells to be harmed from reactive oxygen species.[8] This method allows detection of specific modifications of proteins on immune cells and associated cell disruption long before the affected cells die.

Translational Research and Special Populations: This program comprises a wide range of activities that encourage 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 at understanding environmental risks to particularly vulnerable populations such as the elderly, children, and economically-challenged.

[7] Chi L, Bian X, Gao B, Ru H, Tu P, Lu K. Sex-specific effects of arsenic exposure on the trajectory and function of the gut microbiome. *Chem Res Toxicol,* 2016, 29(6), pp 949-951. DOI: 10.1021/acs.chemrestox.6b00066
[8] Duan J, Kodali VK, Gaffrey MJ, Guo J, Chu RK, Camp DG, Smith RD, Thrall BD, Qian WJ. 2015. Quantitative profiling of protein s-glutathionylation reveals redox-dependent regulation of macrophage function during nanoparticle-induced oxidative stress. ACS Nano. 10(1):524-538. DOI: 10.1021/acsnano.5b05524

The NIEHS-funded Childhood Autism Risk from Genes and Environment (CHARGE) study is a population-based, case-control study of autism spectrum disorder (ASD), developmental delay, and typical development. Investigators from the CHARGE study have found evidence of an association between ASD and developmental delay with gestational exposure to pesticides. The risk was highest when exposure occurred during the third trimester of pregnancy.[9] This work may stimulate efforts to prevent exposure such as removing shoes and washing clothing after working with pesticides. CHARGE investigators have also found that children with ASD and their fathers exhibit markers of molecular stress and damage in cell nuclei and mitochondria.[10]

In a nationwide study of air pollution and ASD, NIEHS-funded investigators found an association between exposure to air pollutants during pregnancy and the risk of having a child with ASD. Investigators examined the children of women across the United States who participated in the Nurses' Health Study II. Exposure to high concentrations of fine particulate matter (less than or equal to 2.5 microns in diameter) during the third trimester was associated with a two-fold increase in the risk of having a child with autism.[11] A recent systematic review and meta-analysis co-funded by NIEHS found evidence of an association between prenatal exposure to particulate matter and ASD.[12]

[9] Shelton JF, Geraghty EM, Tancredi DJ, Delwiche LD, Schmidt RJ, Ritz B, Hansen RL, Hertz-Picciotto I. 2014. Neurodevelopmental disorders and prenatal residential proximity to agricultural pesticides: the CHARGE study. Environ Health Perspect 122:1103–1109; http://dx.doi.org/10.1289/ehp.1307044

[10] Wong S, Napoli E, Krakowiak P, Tassone F, Hertz-Picciotto I, Giulivi C. 2016. Role of p53, mitochondrial DNA deletions, and paternal age in autism: a case-control study. Pediatrics 137(4):e20151888.

[11] Raz R, Roberts AL, Lyall K, Hart JE, Just AC, Laden F, Weisskopf MG. 2014. Autism spectrum disorder and particulate matter air pollution before, during, and after pregnancy: A nested case-control analysis within the Nurses' Health Study II Cohort. Environ Health Perspect; doi:10.1289/ehp.1408133

[12] Lam J, Sutton P, Kalkbrenner A, Windham G, Halladay A, Koustas E, et al. (2016) A Systematic Review and Meta-Analysis of Multiple Airborne Pollutants and Autism Spectrum Disorder. PLoS ONE 11(9): e0161851. doi:10.1371/journal.pone.0161851

Program Portrait: Oceans and Human Health

FY 2017 Level: $2.3 million
FY 2018 Level: $1.8 million
Change: -$0.5 million

Over 60 percent of the world population lives near coastal areas. In the United States, 75 percent of the population is expected to live in a coastal area by 2025. This results in an increased use of coastal and marine resources. Oceans also are the largest source of protein in the world. NIEHS supports research on oceans and human health through grants and engagement in Federal interagency efforts to protect health associated with marine environments.

NIEHS is working with the National Science Foundation on a new initiative to promote interdisciplinary collaborations between biomedical and ocean scientists to improve knowledge about the impact of marine environments on human health. Human activities, such as farming and use of motor vehicles and septic tanks, lead to runoff that pollutes ocean environments. The pollutants in runoff can accumulate in fish, shellfish, birds, and marine mammals, and make their way back into human populations as food.

Microplastic particles, such as those found in some exfoliating cosmetic products and as a result of plastic trash being broken down, absorb toxic chemicals and may also pose a human health risk as they move through the marine food web. Rising sea levels, increased temperatures, and more extreme weather events are associated with an increase in harmful algal blooms which can have negative impacts on human health.

Past NIEHS-funded research on oceans and human health has resulted in more than 400 peer-reviewed manuscripts and led to many scientific discoveries, such as the potential of brevenal,[13] a natural product that inhibits the toxic effects of a marine microorganism, as a therapeutic for Cystic Fibrosis.

Predictive Toxicology: The NIEHS is home to the National Toxicology Program (NTP), a collaborative organization also involving CDC and FDA. The mission of the NTP is to evaluate environmental agents of public health concern and generate information to be used by regulatory agencies in making decisions about environmental and other exposures that may affect public health. NTP also works to develop new and improved test methods, such as high speed robotic methods known as "high throughput" to test substances faster, reduce the economic burden of animal-based tests, and disseminate useful public health information more rapidly. These improved models of toxicity can help to predict cancer and other adverse health outcomes that may result from fetal or early life environmental exposures.

NIEHS scientists from the NTP Interagency Center for Alternative Toxicological Methods (NICEATM), collaborated with EPA scientists to develop an alternative test strategy to replace animal-based testing of chemicals for endocrine disruption.[14] This revolutionary effort exemplifies the success of the Toxicology in the 21st Century (Tox21) program by using high throughput screening data from non-animal tests and an associated computational model to screen chemicals for endocrine-disrupting activity. NICEATM scientists curated an extensive database of high-quality animal data using systematic literature review.[15] These data were used

[13] Abraham WM, Bourdelais AJ, Sabater JR, Ahmed A, Lee TA, Serebriakov I, Baden DG. Airway responses to aerosolized brevetoxins in an animal model of asthma. *Am J Respir Crit Care Med*. 2005 January 1; 171(1): 26–34. doi:10.1164/rccm.200406-735OC

[14] Browne P, Judson RS, Casey WM, Kleinstreuer NC, Thomas RS. Screening Chemicals for Estrogen Receptor Bioactivity Using a Computational Model. Environ Sci Technol. 2015; 49(14):8804-14.

[15] Kleinstreuer NC, Ceger PC, Allen DG, Strickland J, Chang X, Hamm JT, et al. A Curated Database of Rodent Uterotrophic Bioactivity. Environ Health Persp. 2016; 124(5): 556-562.

to develop a set of reference chemicals and to validate the computational model, which was then compared to existing animal-based regulatory test guidelines. This new computational model allows us to test thousands of chemicals more rapidly in human-relevant systems and substantially decrease costs and animal use. It also replaces low throughput and animal-based assays in the Endocrine Disruptor Screening Program (EDSP) Tier 1 battery used by the EPA.[16] This is the first example of the replacement of an animal guideline test with predictive toxicology approaches based on high throughput screening data and represents a paradigm shift in chemical testing.

Training and Education: This program's goals are to attract the brightest students and scientists into the environmental health sciences field, to continue mentored training along the career trajectory, to build research capacity, throughout the United States, and to create 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).

Introducing high school and undergraduate students to the excitement of performing their own scientific research—and equipping their teachers to provide the best science education—are critical components of NIEHS efforts to ensure the development of the future research workforce in environmental health science. NIEHS participates in the NIH R25 Summer Research Experience Program designed to help attract young students to careers in science, provide opportunities for college students to gain valuable research experience to help prepare them for graduate school, and enhance the skills of science teachers to communicate the nature of the scientific process to their students. Under the auspices of this R25 program, NIEHS supports 11 Summer Research Experience programs at universities across the United States. One undergraduate summer researcher participating in the NIEHS-supported R25 Summer Undergraduate Research Experience (SURE) Program at Michigan State University won a Perry J. Gehring Diversity Student Travel Award to attend the March 2016 Annual Meeting of the Society of Toxicology and present her project there. The undergraduate, a second-year student at the University of Puerto Rico-Cayey, presented a poster on "Mitochondrial Membrane Potential Changes in Reponses to Methylmercury Induced Toxicity in NSC34 Cells."

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

[16] U.S.EPA. 2015. Use of High Throughput Assays and Computational Tools: Endocrine Disruptor Screening Program; Notice of Availability and Opportunity for Comment, 80 Fed. Reg. 118 (June 19, 2015). Office of Chemical Safety and Pollution Prevention, U.S. Environmental Protection Agency, Washington DC. Available online at: https://www.federalregister.gov/articles/2015/06/19/2015-15182/use-of-high-throughput-assays-and-computational-tools-endocrine-disruptor-screening-program-notice.

opportunities for clinical and basic scientists in the intramural programs to collaborate and learn how environmental exposures influence human health and disease.

In support of the NIEHS Strategic Plan goal of examining susceptibility to environmental exposures across the lifespan, NIEHS intramural scientists have coupled high throughput assay and bioinformatics approaches to identify environmental factors that can result in epigenetic changes to DNA during development. Epigenetic changes can alter gene expression without changing the actual DNA sequence. One such environmental factor is the level of folic acid in a mother's blood during pregnancy. Folic acid is vital for fetal development, and supplementation of folic acid is recommended during pregnancy. Through the largest study of its kind, NIEHS scientists have shown that high levels of folic acid in the mother's blood leads to changes in gene regulation through low levels of DNA epigenetic alteration and gene expression.[17] The study also identified new genes that are affected in this way, including those involved in tumor suppression, embryonic development, and nervous system development. This work provides important clues to identifying the effects of folic acid levels during pregnancy on the health of the offspring throughout its lifetime.

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 842 off-site research grants and centers in FY 2016. The NIEHS High-Impact Tracking System (HITS) is a web-based data management system designed to help identify scientific advances in the NIEHS research portfolio as they emerge and provide a robust data structure to capture those advances. The system enables us to download previously un-searchable data from the central NIH grants database and apply a robust coding schema to track research products (going beyond publication counts to the content of publications) as well as research impacts.

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.

[17] Parr CL, MC Magnus, O Karlstad, M Haugen, H Refsum, PM Ueland, A McCann, P Nafstad, SE Haberg, W Nystad and SJ London. Maternal folate intake during pregnancy and childhood asthma in a population based cohort. *Am. J. Respir. Crit. Care Med.* (2016) [In Press] http://dx.doi.org/10.1164/rccm.201604-0788OC

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Detail of Full-Time Equivalent Employment (FTE)

OFFICE/DIVISION	FY 2016 Final			FY 2017 Annualized CR			FY 2018 President's Budget		
	Civilian	Military	Total	Civilian	Military	Total	Civilian	Military	Total
Division of Extramural Research									
Direct:	68	-	68	73	-	73	73	-	73
Reimbursable:	1	-	1	1	-	1	1	-	1
Total:	69	-	69	74	-	74	74	-	74
Division of Intramural Research									
Direct:	323	1	324	329	1	330	329	1	330
Reimbursable:	1	-	1	1	-	1	1	-	1
Total:	324	1	325	330	1	331	330	1	331
Division of National Toxicology Program									
Direct:	105	1	106	107	1	108	107	1	108
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	105	1	106	107	1	108	107	1	108
Office of Management									
Direct:	85	3	88	91	3	94	91	3	94
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	85	3	88	91	3	94	91	3	94
Office of the Director									
Direct:	52	2	54	53	2	55	53	2	55
Reimbursable:	-	-	-	-	-	-	-	-	-
Total:	52	2	54	53	2	55	53	2	55
Total	635	7	642	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
2014	11.5
2015	11.8
2016	11.9
2017	11.9
2018	11.9

NATIONAL INSTITUTES OF HEALTH
National Institute of Environmental Health Sciences

Detail of Positions[1]

GRADE	FY 2016 Final	FY 2017 Annualized CR	FY 2018 President's Budget
Total, ES Positions	1	1	1
Total, ES Salary	166,827	173,500	176,797
GM/GS-15	40	39	39
GM/GS-14	55	58	58
GM/GS-13	117	121	121
GS-12	116	118	118
GS-11	84	88	88
GS-10	1	1	1
GS-9	39	41	41
GS-8	14	13	13
GS-7	23	23	23
GS-6	3	2	2
GS-5	1	0	0
GS-4	0	0	0
GS-3	1	1	1
GS-2	0	0	0
GS-1	0	0	0
Subtotal	494	505	505
Grades established by Act of July 1, 1944 (42 U.S.C. 207)	0	0	0
Assistant Surgeon General	0	0	0
Director Grade	0	0	0
Senior Grade	3	3	3
Full Grade	2	2	2
Senior Assistant Grade	2	2	2
Assistant Grade	0	0	0
Subtotal	7	7	7
Ungraded	165	174	174
Total permanent positions	495	513	513
Total positions, end of year	667	687	687
Total full-time equivalent (FTE) employment, end of year	642	662	662
Average ES salary	166,827	173,500	176,797
Average GM/GS grade	11.9	11.9	11.9
Average GM/GS salary	91,428	93,962	96,217

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