

Report to the National Advisory Environmental Health Sciences Council Director, NIEHS

20-21 February 2013

Director's Message

Strategic Planning Implementation

Implementation planning continues for our 2012-2017 Strategic Plan, "Advancing Science, Improving Health: A Plan for Environmental Health Research", which was published last August. This process has been a new one for NIEHS, characterized by an unprecedented level of discussion and collaboration across the divisions, to promote efficiency and generate creative thinking and approaches to addressing our strategic goals. Division leadership have discussed and compared the topics and activities that had been given high priority in the separate division draft implementation proposals, and have also identified eight trans-divisional priority topics: Epigenetics, Inflammation, Stem Cells, Exposome, Predictive Toxicology and Disease, Global Environmental Health, Knowledge Science and Data Management, and Website/Social Media. Trans-Institute planning committees were formed around each of these eight topics to discuss possible approaches, activities, and needs, as well as to specifically consider how the different divisions of NIEHS can work together to make progress in these areas. Co-chairs of these trans-Institute committees reported their findings and recommendations to NIEHS Leadership on February 11 and 12. The next step will be for Leadership to carefully examine these proposals and determine which ones will merit additional resources going forward.

NIEHS is actively responding to the increasing need for **emergency preparedness** for environmental and other events. In September, experts from NIEHS and nearly two dozen other federal agencies gathered on the NIH campus in Bethesda, MD. to identify ways that research scientists can be deployed immediately in response to terrorist acts, natural disasters, accidents, and pandemics. And in January, the Institute issued an announcement for time-sensitive research applications related to potential exposures and health outcomes as a result of **Superstorm Sandy**. The potential for exposures to biological and chemical hazards and its effects on physical and mental health for responders and residents could be substantial. This R21 mechanism allows for research to provide information necessary for the rapid translation of the science to protect the health and safety of affected communities.

In December, the NIEHS celebrated the 20th anniversary of its **cooperative agreement with the Food and Drug Administration (FDA)**. The agreement makes it possible for NIEHS to provide support for toxicological studies on agents of public health concern that are conducted at the FDA (NCTR). The NIEHS is also actively participating in the new **FDA/NIH Tobacco Initiative**. NIEHS was named the trans-NIH lead for training efforts under the program. NIEHS intramural scientists Doug Bell, PhD, in the Environmental Genomics Group, and Stephanie London, MD, DrPH, in the Genetics, Environment, and Respiratory Disease Group, are among the first recipients of research grants under the new program. Talks are also being had about possible funding for an NIEHS/NTP-led rapid screening effort for the chemical constituents of tobacco products.

In **staff news**, Dr. Fred Miller has stepped down from the position of Acting Director of the NIEHS Clinical Research Unit to focus his attention on being Chief of the Environmental Autoimmunity Group, which is undergoing a BSC review this summer. Dr. Stavros Garantziotis has agreed to take on the role of Acting Clinical Director going forward.

On November 29, NIEHS convened a panel of experts to tackle questions from the public on childhood obesity and related environmental factors, but not in the usual setting. This unique event was the first of its kind at NIEHS to mix social media and Internet broadcasting to reach a diverse national audience. The webcast attracted more than 600 viewers and sparked tweets to 1.5 million Twitter users. Given the mix of new technologies and old budget constraints, this type of virtual forum offers an efficient and effective way for NIEHS to communicate with stakeholders in the future.

Recently, the Lancet published the **Global Burden of Disease (GBD) 2010** report. The GBD (formerly published by WHO) is the largest ever, systematic effort to describe the global distribution and causes of a wide array of major diseases, injuries, and health risk factors. The GBD is a collaboration of 486 scientists from 302 institutions in 50 countries, including NIEHS grantees and staff scientists. This report contains some interesting findings for environmental health. For instance, there is a distinct trend toward non-communicable diseases such as stroke and ischemic heart disease making up a much larger proportion of illness (1 in 4 deaths). Nearly 1.3 million deaths per year are due to diabetes. The number of deaths due to household air pollution from cookstoves and the use of biofuels have reached nearly 4 million per year (double the previous estimate). And disability from diseases such as mental health disorders, substance use, musculoskeletal disease, diabetes, chronic respiratory disease, anaemia, and loss of vision and hearing will become an increasingly important issue for all health systems. NIH is looking closely at this report in terms of what it should tell us about where our biomedical efforts should be.

Legislative Report

FY 2013 Appropriations

	FY 2011 Full-Year CR	FY 2012 Appropriation	FY 2013 President's Request	FY 2013 House Subcommittee	FY 2013 Senate Committee	FY2013 CR Level**
NIEHS	\$ 683,724,312	\$ 685,570,818	\$ 684,030,000	\$ 684,755,000	\$ 686,103,000	\$ 689,766,511
NIH	\$ 30,688,286,000	\$30,631,986,000	\$30,631,459,000	\$30,623,259,000	\$30,731,459,000	\$30,819,454,000
Common Fund	\$ 543,021,000	\$ 544,930,000	\$ 544,930,000	\$ 544,930,000	\$ 544,930,000	\$ 548,265,000
Superfund*	\$ 79,053,576	\$ 78,927,514	\$ 78,928,000	\$ 74,928,000	\$ 78,928,000	\$ 79,410,550
NIEHS/DOE Training	\$ 10,000,000	\$ 10,000,000				\$ 10,000,000

*FY 2013 Superfund reflects Senate Subcommittee draft mark

**Includes FY 2012 across-the-board rescission and 0.612% increase in FY 2013 CR; excludes Secretary's transfers

Congress passed and the President signed a Continuing Resolution that funds the federal government from 1 Oct 2012 to 27 Mar 2013 at a total level of \$1.047, the amount in the August 2011 debt ceiling agreement. An across-the-board increase of 0.612 percent over the base rate with a freeze on pay for federal employees is included. At the present time, the federal agencies are operating at the FY 2012 level. See chart for details.

Deadlines looming:

- 1 Mar 2013 Sequestration kicks in
- 27 Mar 2013 Current Continuing Resolution ends
- 19 May 2013 Debt Ceiling deal ends

No progress can be made on funding after 27 Mar 2013 until a compromise is negotiated on sequestration.

The memberships of the House and Senate Labor, HHS and Interior, Environment Appropriations Subcommittees follow:

House Labor, HHS

Republicans

Jack Kingston (GA) Chairman
Rodney Alexander (LA)
Mike Simpson (ID)
Steve Womack (AR)
Chuck Fleischmann (TN)
David Joyce (OH)
TBD

Democrats

Rosa DeLauro (CT) Ranking
Lucille Roybal-Allard (CA)
Barbara Lee (CA)
Mike Honda (CA)

House Interior, Environment

Republicans

Mike Simpson (ID) Chairman
Ken Calvert (CA)
Tom Cole (OK)
Tom Graves (GA)
Jaime Herrera Beutler (WA)
David Joyce (OH)

Senate Labor, HHS

Democrats

Tom Harkin (IA) Chairman
Barbara Mikulski (MD)
Patty Murray (WA)
Mary Landrieu (LA)
Richard Durbin (IL)
Jack Reed (RI)
Mark Pryor (AR)
Jon Tester (MT)
Jeanne Shaheen (NH)
Jeff Merkeley (OR)

Republicans

Richard Shelby (AL) Ranking
Thad Cochran (MS)
TBD
Lamar Alexander (TN)
Ron Johnson (WI)
Mark Kirk (IL)
Lindsey Graham (SC)
Jerry Moran (KS)

Senate Interior, Environment

Democrats

Jack Reed (RI) Chairman
Dianne Feinstein (CA)
Patrick Leahy (VT)
Jon Tester (MT)
Tim Johnson (SD)
Tom Udall (NM)

David Valadao (CA)

Jeff Merkley (OR)
Mark Begich (AK)

Democrats

Jim Moran (VA) Ranking
Betty McCollum (MN)
Chellie Pingree (ME)
Jose Serrano (NY)

Republicans

Lisa Murkowski (AK)
Lamar Alexander (TN)
Thad Cochran (MS)
Susan Collins (ME)
Ron Johnson (WI)
Roy Blount (MO)
John Hoeven (ND)

Senators Patty Murray (D-WA) and Barbara Mikulski (D-MD), Chairmen of the Senate Budget and Appropriations Committees respectively, have committed to returning to the regular order of business for FY 2014 with a budget resolution and 12 appropriations bills. Senate Democratic leaders have said additional revenue must be part of the package while Republicans advocate only for cuts.

Nita Lowey (D-NY) is the new Ranking Member of the House Appropriations Committee. Hal Rogers (R-KY) continues as Chairman of House Appropriations.

Congressional Briefings

Parkinson's Disease. On 11 October 2012, the Parkinson's Action Network (PAN) sponsored a briefing on the innovative science underway on the connection between environmental exposures, genes, and Parkinson's disease (PD). Dr. Linda Birnbaum, NIEHS Director, Col. Karl Friedl, Director, U.S. Army Medical Research and Materiel Command's Telemedicine & Advanced Technology Research Center, and Dr. Caroline Tanner, Director of Clinical Research, Parkinson's Institute, presented information on research underway at their respective institutions and new results that provide insight into how PD is initiated and promoted. Over 70 congressional staff and representatives from several advocacy groups attended.

Toxicology Research. On 17 October 2012, the Society of Toxicology (SOT) sponsored a briefing on "FutureTox: Consideration of 21st Century Toxicology and Risk Assessment Practices in Legislation and Regulation." FutureTox will address the challenges and opportunities associated with effective and efficient implementation of the explosion of 21st century toxicity testing technologies and tools into improved, science-informed hazard prediction and risk assessment. Speakers and their topics included Dr. Daland Juberg, Dow AgroSciences, moderator; Dr. Raymond Tice, NIEHS, New Approaches for 21st Century Toxicology Testing; Dr. Craig Rowlands, Dow Chemical Company, Qualifying New Assays for Decision Making; Dr. Sean Hayes, Summit Toxicology, Matching High Throughput Testing with Real World Exposures; and Dr. Russell Thomas, Hamner Institute for Health Sciences, 21st Century Risk Assessments: Opportunities and Challenges. Dr. Tice provided a description of efforts to improve NTP testing. Dr. Rowlands talked at length about the importance of validation. Others noted the importance of having exposure information in order to regulate. Over 60 staff attended with questions from some showing considerable understanding of the issue.

Senate Climate Briefing. On 13 February 2013, Senator Barbara Boxer (D-CA), Chairman, and the Senate Environment and Public Works Committee hosted a climate science briefing for Senate members and staff. The goal was to present the most recently available climate science so that the members can be prepared to develop new climate policy initiatives in the 113th Congress. Dr. John Balbus, Senior Advisor for Public Health and climate change lead, NIEHS, participated in the event.

Climate Change Task Force

Representative Henry Waxman (D-CA) and Senator Sheldon Whitehouse (D-RI) have established a bicameral climate change task force that is seeking input from industry, labor, academia and NGOs on ways to reduce greenhouse gas emissions.

Autism Hearing

On 29 November 2012, the House Oversight and Government Reform Committee chaired by Darrell Issa (R-CA) with Ranking Member Elijah Cummings (D-MD) held a hearing on autism at the behest of retiring former Committee Chairman Dan Burton (R-IN). Witnesses included Alan Guttmacher, NICHD Director; Coleen Boyle, Director of the CDC Center on Birth Defects and Developmental Disabilities; and representatives from Autism Speaks, Autism Society, Mercyhurst University, Global and Regional Asperger Syndrome Partnership, Autism Self Advocacy Network, and Safe Minds. The Committee members and the advocacy community expressed great frustration at the lack of progress in understanding the causes of autism and how to treat the disorder effectively. It was clear that many members and most of the advocacy community still believe that vaccines play a role in the initiation of autism, although most members now say that they understand the public health value of vaccines. In Dr. Guttmacher's oral statement, he mentioned that NIH research included studies on environmental risk factors. In his written statement, he provided some details on the NIEHS CHARGE and EARLI studies. In response to several questions, he noted the importance of looking for environmental factors that could trigger the development of autism.

GAO Review of Indirect Costs

GAO has notified the HHS Secretary that it is initiating a review of indirect costs for research funded by the NIH. The review is in response to a request made by Senator Jeff Sessions (R-AL), Ranking Member, Senate Committee on the Budget. The key questions include: (1) How much of NIH's extramural research budget supports the indirect and direct costs for grantee research? (2) How does NIH establish its policies for providing funding to cover the indirect costs for extramural research? (3) How much does this indirect funding for extramural research vary across NIH grantees? (4) How much indirect funding went to the top recipients of NIH grants, particularly those receiving multiple NIH grants simultaneously? HHS agencies involved in the review include the NIH and selected NIH grant recipients.

Science Advances (NIEHS authors' groups in parens)

One NIEHS

- Characterization of Four New Mouse Cytochrome P450 Enzymes of the CYP2J Subfamily. Graves JP (DIR), ML Edin (DIR), JA Bradbury (DIR), A Gruzdev (DIR), J Cheng (DIR), FB Lih (DIR), KB Tomer (DIR), JP Morrison, NP Clayton (NTP), TA Masininde (NTP), W Qu (NTP) and DC Zeldin (DIR). *Drug Metabol and Disp* <http://dx.doi.org/10.1124/dmd.112.049429>

- Global Burden of Disease Study 2010: *NIEHS staff scientists and grantees contributed to a number of the articles in this series published in the December 13, 2012 issue of Lancet.*
<http://www.thelancet.com/themed/global-burden-of-disease>
- Early-life prevention of non-communicable diseases. John M Balbus, Robert Barouki, Linda S Birnbaum, Ruth A Etzel, Sir Peter D Gluckman, Philippe Grandjean, Christine Hancock, Mark A Hanson, Jerrold J Heindel, Kate Hoffman, Génon K Jensen, Ann Keeling, Maria Neira, Cristina Rabadán-Diehl, Johanna Ralston, Kwok-Cho Tang.
Lancet
[http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(12\)61609-2/fulltext](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(12)61609-2/fulltext)

DERT:

- *Polysome profiling in liver identifies dynamic regulation of endoplasmic reticulum translatome by obesity and fasting.* Fu S, J Fan, J Blanco, A Gimenez-Cassina, NN Danial, SM Watkins and GS Hotamisligil. *Plos Genetics* (2012) v. 8 (8): pp. e1002902
<http://dx.doi.org/10.1371/journal.pgen.1002902>
- *Air pollution and DNA methylation: interaction by psychological factors in the VA Normative Aging Study.* Madrigano J, A Baccarelli, MA Mittleman, D Sparrow, A Spiro, 3rd, PS Vokonas, L Cantone, L Kubzansky and J Schwartz. *Am. J. Epidemiol.* . (2012) v. 176 (3): pp. 224-32
<http://dx.doi.org/10.1093/aje/kwr523>

DIR:

- *450K Epigenome-Wide Scan Identifies Differential DNA Methylation in Newborns Related to Maternal Smoking during Pregnancy.* **Joubert BR**, SE Haberg, RM Nilsen, XT **Wang**, SE Vollset, SK Murphy, Z Huang, C Hoyo, O Midttun, **LA Cupul-Uicab**, **PM Ueland**, MC Wu, W Nystad, **DA Bell**, **SD Peddada** and **SJ London**. *Environ. Health Perspect.* (2012) v. 120 (10): pp. 1425-1431.
<http://dx.doi.org/10.1289/ehp.1205412>
- *Risk of Fetal Death after Pandemic Influenza Virus Infection or Vaccination.* Haberg SE, L Trogstad, N Gunnes, **AJ Wilcox**, HK Gjessing, SO Samuelsen, A Skrondal, I Cappelen, A Engeland, P Aavitsland, S Madsen, I Buajordet, K Furu, P Nafstad, SE Vollset, B Feiring, H Nokleby, P Magnus and C Stoltenberg. *New Engl J Med* (2013)
<http://dx.doi.org/10.1056/NEJMoa1207210>

DNTP:

- *Interleukin-6 (IL-6) receptor/IL-6 fusion protein (Hyper IL-6) effects on the neonatal mouse brain: Possible role for IL-6 trans-signaling in brain development and functional neurobehavioral outcomes.* **Brunssen SH**, SS Moy, AD Toews, **CA McPherson** and **GJ Harry**. *Brain Behavior and Immunity* (2013) v. 27 pp. 42-53
<http://dx.doi.org/10.1016/j.bbi.2012.08.017>

- *Prediction of Cytochrome P450 Profiles of Environmental Chemicals with QSAR Models Built from Drug-Like Molecules.* Sun HM, H Veith, MH Xia, CP Austin, **RR Tice** and RL Huang. *Molecular Informatics, Informatics* (2012) v. 31 (11-12): pp. 783-792 <http://dx.doi.org/10.1002/minf.201200065>

NIEHS News and Highlights

National Toxicology Program

Rear Adm. William Stokes, D.V.M., former director of the **NTP Interagency Center for the Evaluation of Alternative Toxicological Methods** and Executive Director of the **Interagency Coordinating Committee on the Validation of Alternative Methods**, retired from the Public Health Service and NIEHS in January. Warren Casey, PhD, PABT, is serving as Acting Director of this program, which is being redirected to more adequately address the goals of ICCVAM partner agencies.

In December, a panel led by Catherine Spong, M.D., associate director for Extramural Research at the Eunice Kennedy Shriver National Institute of Child Health and Human Development reviewed the **NTP Draft Monograph on the Developmental Effects and Pregnancy Outcomes Associated with Cancer Chemotherapy Use During Pregnancy** and concurred on the paper's key findings:

- Cancer chemotherapy use in the first trimester represents a higher apparent risk of major malformations than in the second and/or third trimesters only.
- Cancer chemotherapy does not appear to increase the apparent risk of spontaneous abortions
- Stillbirth (spontaneous fetal loss at <22 weeks of gestation) appears to increase with use of specific agents
- Cancer chemotherapy during pregnancy does not appear to be associated with spontaneous preterm labor.
- Growth and development of offspring exposed to chemotherapy treatment for cancer during pregnancy appear normal during infancy and early childhood (<2 years of age); however, it is important to recognize that certain functional deficits may not be apparent until later in life, e.g., effects on reproductive function.

Also in December, the NTP Board of Scientific Counselors approved a **research concept** for the study of polycyclic aromatic hydrocarbons (PAHs) that would assess the cumulative effects of PAHs using both a component-based, or relative potency factor approach, and a whole mixture approach.

The Board also approved a report on a **systematic review process** being developed by NTP that allows for more transparency of how the program's health assessment conclusions are determined. Systematic review is a scientific investigation that focuses on a specific question, and uses explicit, pre-specified methods to identify, select, summarize, and assess the findings of similar but separate studies. It has traditionally been used for evaluating health care interventions. It is expected to be a powerful tool for conducting literature-based evaluations and helping NTP develop evidence-based conclusions.

Superfund Research Program

In October, the Superfund Research Program (SRP) marked its 25th Anniversary in a titled **Superfund Research Program: A Quarter Century of Transdisciplinary Research and Training to Protect**

Human and Environmental Health that was held in Raleigh, NC, and sponsored by the SRP centers at Duke University and the University of North Carolina. The event highlighted SRP advances in transdisciplinary approaches to understand the exposure-disease paradigm. A separate symposium held in conjunction with the anniversary meeting explored topics related to the exposome and other related emerging areas of study.

In December, the SRP announced a new funding opportunity titled **Superfund Research Program (SRP) Occupational and Safety Training Education Programs on Emerging Technologies**. The goal of this program is to enable Higher Education Institutions to develop and implement the use of high quality course curricula on the occupational health and safety management practices for emerging technologies such as emerging hazardous waste products, green chemistry, sustainable remediation, and biomonitoring sensors. The first applications are due February 26.

Arizona State University has appointed NIEHS SRP grantee Rolf Halden as director of its new **Center for Environmental Security (CES)**. The major research themes of CES include environmental monitoring as a means of threat detection; environmental epidemiology for health impact assessment; public health preparedness for bioterrorism prevention; innovative environmental diagnostics and management strategies using microcosm arrays and policy interventions; and food safety and security through microbial drug-resistance tracking.

Breast Cancer Research

The Annual Public Meeting of the **Breast Cancer and the Environment Research Program (BCERP)** was held in San Francisco, CA, on November 14-16, 2012. The BCERP Annual Meeting provides a forum for breast cancer researchers, breast cancer advocates and community members to come together and learn about the latest advances in understanding the role of the environmental exposures throughout critical life stages.

The NIEHS Epidemiology Branch was the recipient of \$270,000 in December from the Avon Foundation. The money is part of proceeds from the 8th annual **Avon Walk for Breast Cancer**, held October 27-28 in Charlotte, NC. The event, which attracted more than 900 participants from 36 states and Washington, D.C., raised more than \$1.75 million for breast cancer research and awareness. NIEHS received the largest research grant awarded at the event and the money will be used to support the Institute's breast cancer research efforts.

The **Collaborative Summit on Breast Cancer Research** was held January 31-February 1 in Washington, DC. The Summit brought together researchers, advocates, pharmaceutical industry representatives, research funders, and government leadership to discuss the latest findings and potential collaborative projects. This was the first year NIEHS has been invited to participate.

The **Interagency Breast Cancer and the Environment Research Committee** is an advisory committee jointly led by NIEHS and NCI. The committee is mandated by Congress to produce a report for the Secretary of Health and Human Services on the state of breast cancer and the environment research. The report was released on February 13. Key recommendations of the report include:

1) Prioritize Prevention

The Committee recommends a national breast cancer prevention strategy to prioritize and increase federal government investments in breast cancer prevention.

2) Transform How Research Is Conducted

The Committee recommends investigation into compelling scientific themes utilizing a transdisciplinary approach.

3) Intensify the Study of Chemical and Physical Factors

The Committee recommends research on the effects of chemical and physical factors that potentially influence the risk of developing and likelihood of surviving breast cancer.

4) Plan Strategically across Federal Agencies

The Committee recommends that federal, state, and non-governmental organizations coordinate and collaborate to accelerate the pace of scientific research on breast cancer and the environment.

5) Engage Public Stakeholders

The Committee recommends that the research planning, implementation, and translation process include stakeholders who represent the public and affected communities at every stage.

6) Train Transdisciplinary Researchers

The Committee recommends federal programs to encourage and enable scientists to engage in transdisciplinary research.

7) Translate and Communicate Science to Society

The Committee recommends that the translation and dissemination of research findings be built into every funded program focusing on breast cancer and the environment from the start.

National Academies of Science

The NIEHS-supported groups under the National Academy of Sciences have been extremely active in the past several months. The Standing Committee on Emerging Science for Environmental Decisions hosted two recent meetings:

- **Exploring Human Genomic Plasticity and Environmental Stressors** was held to initiate and foster the exploration of how environmental stressors may impact the genome, by exploring the intersection of mechanisms leading to genomic changes and mechanisms targeted by environmental stressors. (October, 2012)
- **Integrating Environmental Health Data to Enhance Discovery** was held to foster discussion about the need for enhanced data integration in environmental health sciences (Big Data), evaluate the lessons that can be learned from integrative initiatives in other scientific domains, and strategize about how the community can take major steps toward improving data coordination and access to advance understanding about environmental effects on human health. (January 2013)

The Institute of Medicine Roundtable on Environmental Health Sciences, Research, and Medicine hosted:

- **Understanding the Connections between Coastal Waters and Ocean Ecosystem Services and Human Health: Basic Services, Valuation, and Resiliency**, a workshop to bring together members of the ecology, ecosystem services, and health communities to gain a better understanding of the connections between coastal waterways and ocean processes and public health risks and benefits. (November 2012)

- The **Workshop on the Nexus of Biofuels Energy, Climate Change, and Health** focused on air, water, land-use, food, and social impacts of the use of biomass feedstock as an energy resource. (January 2013)
- Three public webinars focused on different aspects of **Global Environmental Health and Sustainable Development** were held between October and December as part of a new Innovation Collaborative effort of the Roundtable and NIEHS. (October-December 2012)

Global Environmental Health

NIEHS continues to coalesce our Global Environmental Health Program, which coordinates a variety of activities and information sharing across the Institute, and with external partners.

An NIEHS application has been submitted to the World Health Organization to re-establish the Institute as an environmental health **Collaborating Center**. The terms of reference for the center are:

- To assist WHO in promoting international cooperation among environmental health research institutes around the world
- To assist WHO in promoting global awareness of emerging issues in environmental health
- To assist WHO in the preparation of training materials and support education and training efforts in environmental and occupational health sciences.

In November the Institute launched a new bi-monthly online **GEH Newsletter** and updated website to communicate with our research and stakeholder communities on related activities. The newsletter is available at www.niehs.nih.gov/geh.

In January, a series of seven papers by leading experts in ecology, toxicology, and public health, exploring the issues surrounding chemical risk assessment and management in light of a changing global climate were published in the journal *Environmental Toxicology and Chemistry (ET&C)*. The papers, which stem from an international workshop of the Society of Environmental Toxicology and Chemistry, held in July 2011 and sponsored by NIEHS and the NIEHS Superfund Research Program detail the ways climate change might affect how chemicals are transported and cause toxicity to ecosystems and humans, and consequently how chemical risk assessment and management practices may have to be adapted.

NIEHS has jointly awarded with the Fogarty International Center (FIC) 16 **GEOHealth** planning grants. This new program pairs researchers in the United States with those in low- and middle-income countries (LMICs) to develop multidisciplinary environmental health research and training hubs around the world.

In October, NIEHS partnered with FIC, NICHD, and USAID to conduct a three-day **Household Air Pollution and Cookstoves Training Institute**. Over the course of the workshop, faculty from diverse backgrounds used a mix of didactic and participatory methods to enable investigators and students from developing countries around the world to better define and understand the health risks associated with HAP, the epidemiological principles that can inform the development of robust and appropriate research study designs, the critical role of the social, behavioral and cultural factors affecting stove adoption, and the complex and evolving technologies for improved stoves and fuels, exposure monitoring, and biomarker development.

Meetings and Events

In December, the National Institutes of Health, in coordination with the Department of Health & Human Services, Office of Minority Health, and the National Institute on Minority Health Disparities held the **2012 Summit on Science of Eliminating Health Disparities—Integrating Science, Policy and Practice; Building a Healthier Society**. NIEHS Partners for Environmental Health Public Health and other staff participated in this HHS-wide endeavor to focus on emerging science and its intersection with practice and policy, while maintaining momentum on current national and international trends in addressing the social determinants of health.

The NIEHS-supported University of California at Berkeley Center for Integrative Research on Childhood Leukemia and the Environment hosted a **Symposium on Cumulative Impacts and Children's Environmental Health** on January 16-17 in Sacramento, CA. Presentations were made by multiple NIEHS grantees on topics such as chemical and non-chemical stressors, traffic and air pollution exposures, and pregnancy and early life exposures and disease risk.

NIEHS staff has been involved in a number of recent meetings to address issues associated with the Deepwater Horizon Gulf Oil Spill. The **Gulf of Mexico Oil Spill and Ecosystem Science Conference** was held in New Orleans, LA, on January 21–23, 2013. The goal of this conference was to improve society's ability to understand the Gulf of Mexico ecosystem, which includes humans, to ensure its long-term environmental health. An important aspect of this goal was to improve understanding of the impacts of petroleum pollution and related stressors on the marine and coastal ecosystems. The meeting provided a forum for the research community in the Gulf of Mexico (nationally and internationally, funded through the GoMRI program as well as other federal and non-federal support) to share their latest scientific results. The Louisiana State University Superfund Research Center in Baton Rouge hosted the **Superfund Research Program Symposium on Response, Recovery, and Resilience to Oil Spills and Environmental Disasters: Engaging Experts and Communities** on January 29. The event was targeted at informing stakeholders, researchers, and policymakers. The **Deepwater Horizon Research Consortium Public Meeting** was held on February 22–24 in Houma, LA. This meeting, hosted by the NIEHS Deepwater Horizon Academic–Community Research Consortium provided a forum to the public to learn about the ongoing efforts and results being obtained by the DWH grantees in an effort to build capacity within these affected communities.

As recognized in the National Nanotechnology Initiative Nano EHS strategic plan, the paucity of information on human nano exposure is hindering the development of nanotechnology health and safety guidelines. NIEHS is considering plans to expand the Nano EHS research program to include exposure assessment as part of the implementation of its new strategic plan. The **NIEHS Nano Exposure Workshop** was held January 9-10 at NIEHS to explore development of tools and technologies to measure and characterize ENM exposure in human populations; build upon knowledge gained from in vivo and in vitro studies to establish the biological determinates that ENMs pose to human health and safety; develop a research strategy for conducting human epidemiology studies to determine health and safety risks posed by ENM exposure in the workplace and in the environment at large, and discuss consumer product exposures.

NIEHS grantees and members of the new NIEHS/NTP/FDA **BPA Research Consortium** met at the Institute on January 17-19 to highlight new findings from the research projects funded by the American Recovery and Reinvestment Act (ARRA) and to develop a comprehensive disease-specific

assessment of possible human health effects due to BPA exposure. NIEHS has now funded 39 projects studying the health effects and risks associated with BPA exposure, and over 140 papers have been published on the research findings since 2010.

A landmark joint meeting of the NIEHS climate change and human health grantees and the CDC climate change public health practitioner grantees was held at the HHS headquarters in Washington, DC on January 30-31. The event, Extreme Weather, Climate and Health: Putting Science into Practice was the first of its kind to bring relevant HHS grantees working in the area of climate change and health together to discuss research findings and needs, best practices for adaptation and preparedness, communication gaps and approaches, and implications for policy and decision makers.

Upcoming Meetings and Events

- NIEHS Centers for Nanotechnology Health Implications Research (NCNHIR) Consortium bi-annual meeting, February 25-26, NIEHS
- T32 Training Directors Meeting, March 27, NIEHS (Contact: Carol Shreffler; shreffl1@niehs.nih.gov)
- [NIEHS Symposium on Unlocking the Promise of Stem Cells](#), April 11-12, NIEHS
- Environmental Health Sciences Core Centers meeting, April 17-21, Seattle, WA
- Environmental Health Disparities and Environmental Justice Meeting, July 29-31, NIEHS

Awards and Recognition

NIH

- [Ramendra Saha](#), Ph.D, Synaptic and Developmental Plasticity Group, wins NIH Pathway to Independence Award
- Leping Li, Ph.D., a bioinformaticist in the NIEHS Biostatistics Branch granted NIH tenure
- NCI honors NIEHS staff for contribution to [Genes, Environment, and Health Initiative](#): Gwen Collman, Ph.D.; William Suk, Ph.D; Claudia Thompson, Ph.D., David Balshaw, Ph.D., Daniel Shaughnessy, Ph.D., Kimberly McAllister, Ph.D., Jennifer Collins
- 10 NIEHS staff recently received NIH OD Merit Awards for “exceptional contributions by employees to the NIH mission”:
 - Office of Management Program Coordinator **Monya Brace**
 - Office of Clinical Research Clinical Laboratory Manager **Annette Rice**
 - Office of Acquisitions Contract Specialist **Antoinette Bridges, D.M.**
 - Office of Acquisitions Branch Chief **Charles Conrad**
 - Administrative Services and Analysis Branch Employee Services Program Specialist **Cynthia Radford**
 - Office of Technology Transfer Director **Elizabeth Denholm, Ph.D.**
 - Clinical Research Program Institutional Review Board Administrator **Jane Lambert**
 - Grants Management Branch Grants Management Specialist **Molly Puente, Ph.D**
- Scientific Review Branch Health Scientist Administrator **Janice Allen, Ph.D.**
- Laboratory of Molecular Carcinogenesis Staff Scientist **John Roberts, Ph.D**

Other

- Rear Adm. William Stokes, D.V.M., former director of the NTP Interagency Center for the Evaluation of Alternative Toxicological Methods and the Interagency Coordinating

Committee on the Validation of Alternative Methods, retired from the Public Health Service and NIEHS in January. Upon retiring he was awarded the PHS [Distinguished Service Medal](#).

- In December, the American Association for the Advancement of Science (AAAS) announced the election of NIEHS lead researcher Michael Resnick, Ph.D., as a new fellow. [Resnick](#) is head of the Chromosome Stability Group in the NIEHS Laboratory of Molecular Genetics. He joined NIEHS in 1979.
- [Director Linda Birnbaum](#), Ph.D., was awarded the [2011 Level III Scientific and Technological Achievement Award \(STAA\)](#) by EPA for examining respiratory effects) of asbestos-containing vermiculite in children in Libby, Montana. The award is given to those who have accomplished an unusually notable research or technological effort. Awarded research relates to a mission or organizational component of the EPA, or significantly affects a relevant area of science/technology.
- Biologist Stella Sieber is one of three new members of the Amputee Coalition Scientific and Medical Advisory Committee (SciMAC). The committee serves as a resource to the organization by contributing clinical and scientific expertise in the development, implementation, and evaluation of Coalition programs, research, and policy initiatives.
- Former NIEHS Acting Director and Deputy Director Samuel Wilson, M.D., will become the first National Institutes of Health scientist to serve as editor-in-chief of the journal *DNA Repair*.

NIEHS-related Awardees:

- Doctoral student Nicki Baker from the University of Kentucky (UK) Superfund Research Program has been named the recipient of the 2012 Karen Wetterhahn Memorial Award for her research on environmental toxins and their impact on obesity and type 2 diabetes.
- Three NIEHS grantees are this year's recipients of the Jacob Heskell Gabbay Award in Biotechnology and Medicine for their work on the health effects of Bisphenol A (BPA): Patricia Hunt, Ph.D. of Washington State University, and Carlos Sonnenschein, M.D., and Ana Soto, M.D., of Tufts University School of Medicine.

News from Building 1 and HHS

New NIH and IC Logos

The NIH has unveiled its new logo and corresponding IC logos, which all play off the main NIH logo. This is part of an effort by NIH to re-brand the institutes and increase public awareness and recognition of the NIH and its mission. Individual ICs will no longer use their traditional logos going forward. The NIEHS selected green as its identifying color for the new logo. We are the only IC to choose this color, and it is in keeping with our environmental mission.

2012 Applications and Awards Facts

The numbers for fiscal year (FY) 2012 are in. Here are some facts about applications and awards in

FY2012, compared to FY2011:

	2011	2012
The overall success rate for research project grants (RPGs) stayed the same compared to 2011.	18%	18%
The average size of RPGs increased .	\$449,644	\$454,588
In 2012, there was an increase in the total amount of funding that went to RPGs.	\$15,815,319,592	\$15,923,746,065
NIH received more R01 grant applications.	28,656	29,515
Success rates for research using the R01 mechanism remained the same	18%	18%
The number of R01 awards increased .	5,264	5,340
NIH received more R21 grant applications.	13,145	13,743
Success rates for the R21 mechanism increased .	13%	14%
NIH awards for the R21 mechanism significantly increased and reached the highest number of awards ever.	1,694	1,932
The success rate for center grant applications decreased .	37%	33%
The average size of a center grant increased .	\$1,863,037	\$1,914,070
Success rates for SBIR grants increased (Phase I success rates shown here)	11%	16%
The number of research grant applications received by NIH increased and reached the highest level ever.	62,267	63,524

Source: <http://nexus.od.nih.gov/all/2013/01/02/fy2012-by-the-numbers-success-rates-applications-investigators-and-awards/>

Office of Disease Prevention

The NIH Office of Disease Prevention has a new director, Dr. David M. Murray. The Office of Disease Prevention (ODP) is the lead office at the [NIH](#) responsible for assessing, facilitating, and stimulating research on disease prevention and health promotion, and disseminating the results of this research to improve public health. Dr. Murray comes to NIH from The Ohio State University, where he is chair and professor of the Division of Epidemiology, College of Public Health. He is currently leading an effort to develop a Strategic Plan for the ODP.

NIH Biomedical Workforce Plan and Big Data

The Advisory Council to the Director, NIH, presented a plan in December to strengthen the biomedical research enterprise. Key components of the plan are:

Diversity in the Biomedical Research Workforce:

- Launch a new NIH program called Building Infrastructure Leading to Diversity (BUILD) intended to provide rigorous mentored research experiences for undergraduate students at participating schools; financial support to pursue biomedical research careers; faculty support for training highly effective mentors; and innovation space to develop new approaches for increasing diversity in the Ph.D. training pathway.
- Establish a National Research Mentoring Network to connect students, postdoctoral fellows, and faculty with experienced mentors; develop standards of good mentorship in biomedical

research; and provide workshops and training opportunities in grantsmanship, among other goals.

- Promote fairness in peer review through interventions including implicit bias and diversity awareness training for both scientific review officers and members of review panels, and piloting a program that would make grant applications completely anonymous.
- Increase engagement of NIH leadership by: recruiting a chief diversity officer to coordinate NIH initiatives designed to enhance the diversity of the NIH-funded workforce
- Establishing an NIH steering committee working group on diversity to help ensure that diversity remains a core consideration of NIH governance

The Future Biomedical Research Workforce:

- Enhance training of graduate students and postdoctoral researchers:
- Through a grants program that would support innovative approaches to complement traditional research training
- By encouraging the adoption of individual development plans for all trainees
- Explore increased support for training mechanisms designed to accelerate the development of independent research careers, including [NIH Pathway to Independence Awards \(K99/R00\)](#) and [Early Independence Awards](#).
- Increase emphasis on ongoing assessment of the biomedical research workforce, including a proposed follow-up study on clinician scientists.
- Identify and track more comprehensively all graduate students and postdoctoral researchers supported by NIH to provide a sound basis for assessing workforce needs and planning future training activities. More comprehensive career outcomes data also would help to inform prospective graduate students and postdoctoral researchers contemplating careers in biomedical research.

Data and Informatics:

- Maximize the value of biomedical data through a new Big Data to Knowledge (BD2K) initiative that would create:
- Improved data and software sharing policies, catalogs of research data, and data/metadata standards development to facilitate broader use of biomedical big data
- Analysis methods and software development and dissemination
- Enhanced training for biomedical big data
- Proposed new centers of excellence
- Launch the NIH InfrastructurePlus adaptive environment to advance high-performance computing, agile hosting and storage approaches, and modernization of the network, among other approaches.