

Science, Environment, and Public Health: Bringing It Together

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National Institute of Environmental Health Sciences
and National Toxicology Program

National Conversation on Public Health and Chemical
Exposures Kickoff Meeting

June 26, 2009

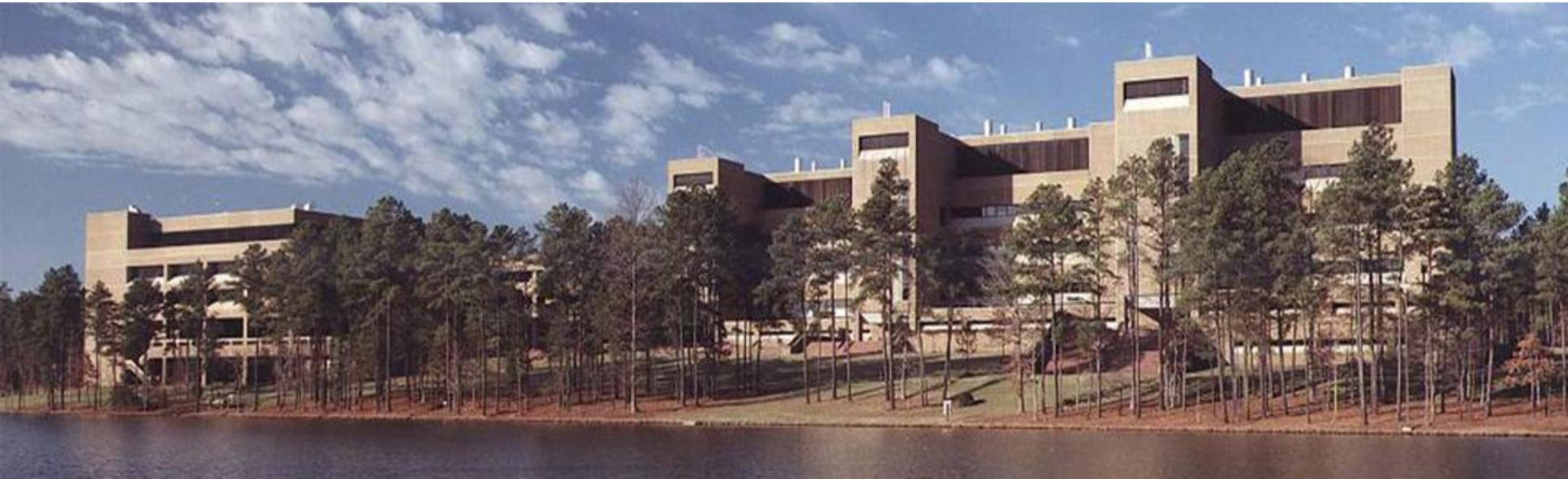


Our Commitment to Environmental Public Health



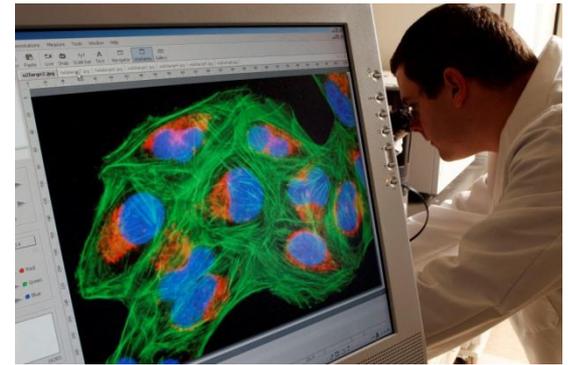
We are the National Institute of Environmental Health Sciences

- One of the National Institutes of Health, but located in Research Triangle Park, NC
- Wide variety of programs supporting our mission of environmental health:
 - Intramural laboratories
 - Extramural funding programs
 - National Toxicology Program



NIEHS Division of Intramural Research

- **Basic, applied and epidemiological research to understand biological consequences of environmental exposures**
- **Interactive and interdisciplinary**
- **High risk and long term**
- **12 laboratories and branches, plus the Clinical Research Program** Examples of research focus areas
 - **Molecular carcinogenesis**
 - **Neuroscience and neurotoxicology**
 - **Signal transduction**
 - **Reproductive and developmental toxicology**
 - **Respiratory biology**
 - **Structural biology**
 - **Epidemiology and biostatistics**
- **New Clinical Research Unit opening July 2009**



NIEHS Division of Extramural Research and Training A Collaborative Scientific Enterprise



- Children's Environmental Health and Disease Prevention Research Centers
- Centers for Oceans and Human Health
- Obesity and the Built Environment program
- Autism: Early Autism Risk Longitudinal Investigation
- Superfund Research Program/Worker Training Program
- Partners in Environmental Public Health

NIEHS Superfund Program: Two Unique Roles

SRP Mandates

- Detect hazardous substances in the environment
- Evaluate the risk of hazardous substances on human health
- Develop basic biological, chemical, and physical methods to reduce the toxicity of hazardous substances

Worker Training

- Create state-of-the-art training programs for hazardous materials handlers, chemical emergency responders, and waste cleanup workers
- Integrate training with National Response Plan

NIEHS

Use environmental sciences to understand human biology and human disease

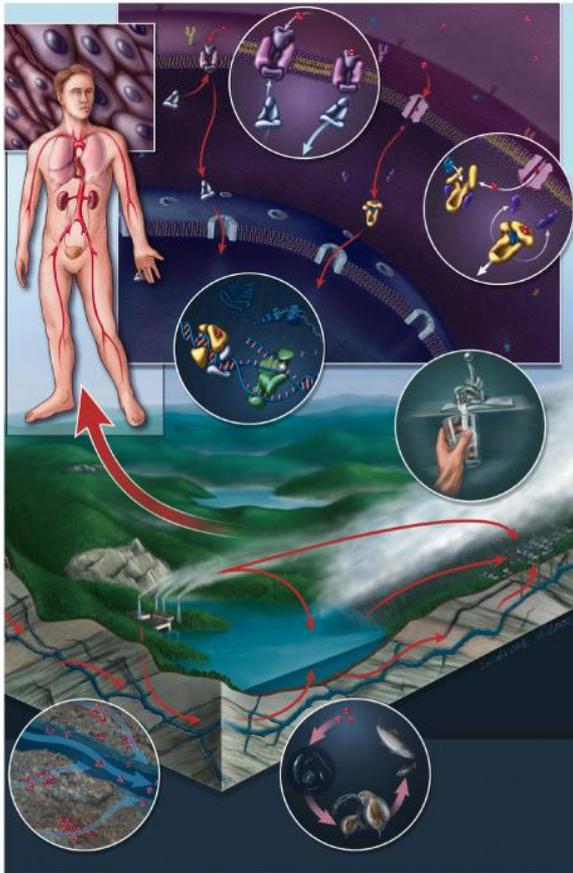
EPA

Regulate to protect human health and the environment

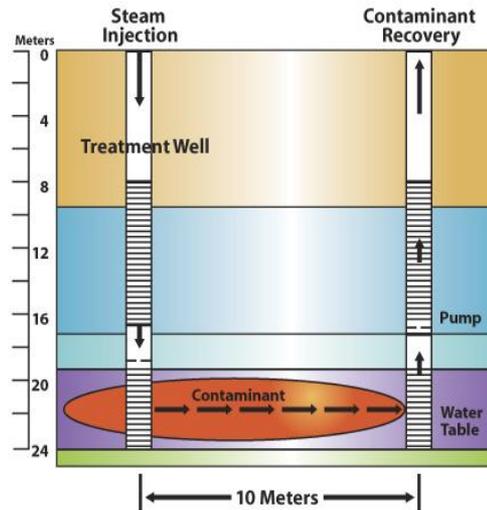
ATSDR

Prevent harmful exposures and diseases related to toxic substances

How Do We Protect The Health Of 14 Million People Living Near Superfund Sites?



Define biological mechanisms of toxicity



Develop remediation tools



Train workers in hazardous environments

NIEHS Preparedness Initiatives:

NIEHS
National Institute of Environmental Health Sciences
Hurricane Response Orientation
Safety Awareness for Responders to Hurricanes:
Protecting Yourself While Helping Others

NIEHS
National Institute of Environmental Health Sciences
National Institute of Environmental Health Sciences
Avian Influenza: Worker Safety & Health
Protecting Yourself While Helping Others
Avian Influenza



August 2007
WORKER EDUCATION & TRAINING PROGRAM

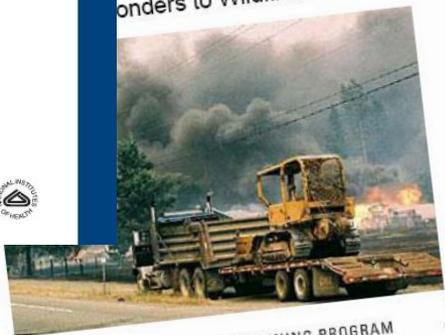
NIEHS
National Institute of Environmental Health Sciences
National Institute of Environmental Health Sciences
Flood Response Orientation
Safety Awareness for Responders to Floods:
Protecting Yourself While Helping Others



June 2008
WORKER EDUCATION & TRAINING PROGRAM

Awareness for Radiological Dispersion Device (RDD) Preparedness
Protecting Yourself During a Dirty Bomb Response
An Awareness Level Training Supplement
Response Training Tool for Skilled Responders

Protecting Yourself While Helping Others
Wildfire Response Training Tool
Health Awareness for Responders to Wildfires



V8 December 2007
WORKER EDUCATION & TRAINING PROGRAM

SRP Planning and Priority Setting: Protection of Human Health and the Environment

- Ongoing process
- Input from scientific community (through workshops)
- Input from partners (EPA, ATSDR, States, Community)
- Joint participation in national research meetings
- Relevancy considerations

Depends on a better understanding of the:

- routes of exposure
- effects of exposure
- *prevention* of exposure

*Reduce uncertainty of risk
Contribute to decision making*



Partnerships for Environmental Public Health: A Program for the Future

Division of Extramural Research and Training,
National Institute of Environmental Health Sciences



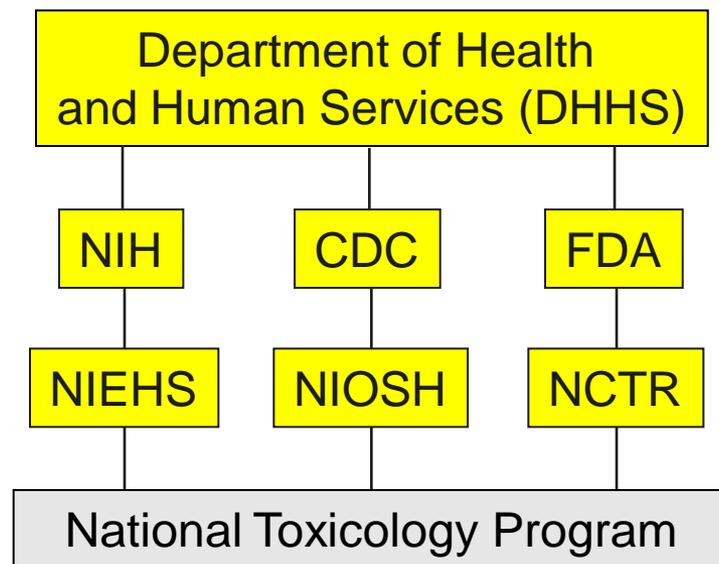
Goals of the PEPH program

- Strategically coordinate and integrate the various new and existing initiatives that involve communities and scientists working together on contemporary issues in Environmental Public Health research.
- Develop and evaluate strategies to communicate environmental public health messages to a diversity of audiences.
- Create and provide materials to increase awareness and literacy about environmental health risks.
- Evaluate program contributions to the advancement of environmental public health.



National Toxicology Program

- Interagency program
 - Established in 1978 to coordinate toxicology research across the Department of Health and Human Services (DHHS)
 - Headquartered at NIEHS
- Research on submitted “nominations”
 - Thousands of agents evaluated in comprehensive toxicology studies
 - Results communicated through technical reports, scientific publications and the web
- Analysis activities
 - Report on Carcinogens (RoC)
 - Center for the Evaluation of Risks to Human Reproduction (CERHR)
 - NTP Interagency Center for the Evaluation of Alternative Toxicological Methods (NICEATM)



ntp.niehs.nih.gov



Interagency Program Headquartered at the NIEHS

Policy Oversight

External Science Oversight and Peer Review

Executive Committee

ATSDR/NCEH
CPSC
EPA
FDA/NCTR
NIH/NIEHS
CDC/NIOSH
NIH/NCI
OSHA

Director

NTP Board of
Scientific Counselors



NCTR

National Center for Toxicological Research
U.S. Food and Drug Administration





Role of NTP in Toxicity Testing

- Provide basic toxicology information for public health protection
- Integrate results from new “data rich” techniques (i.e. genomics, high through-put screening) with traditional toxicology data to provide public health context
- Increase emphasis on understanding and explaining exposure-response relationships and issues of dosimetry
- Develop new methodologies for efficient and thorough toxicological assessments
- Provide guidance for the proper utilization of new types of information in hazard identification and characterization
- Coordinate toxicity testing across the Federal government

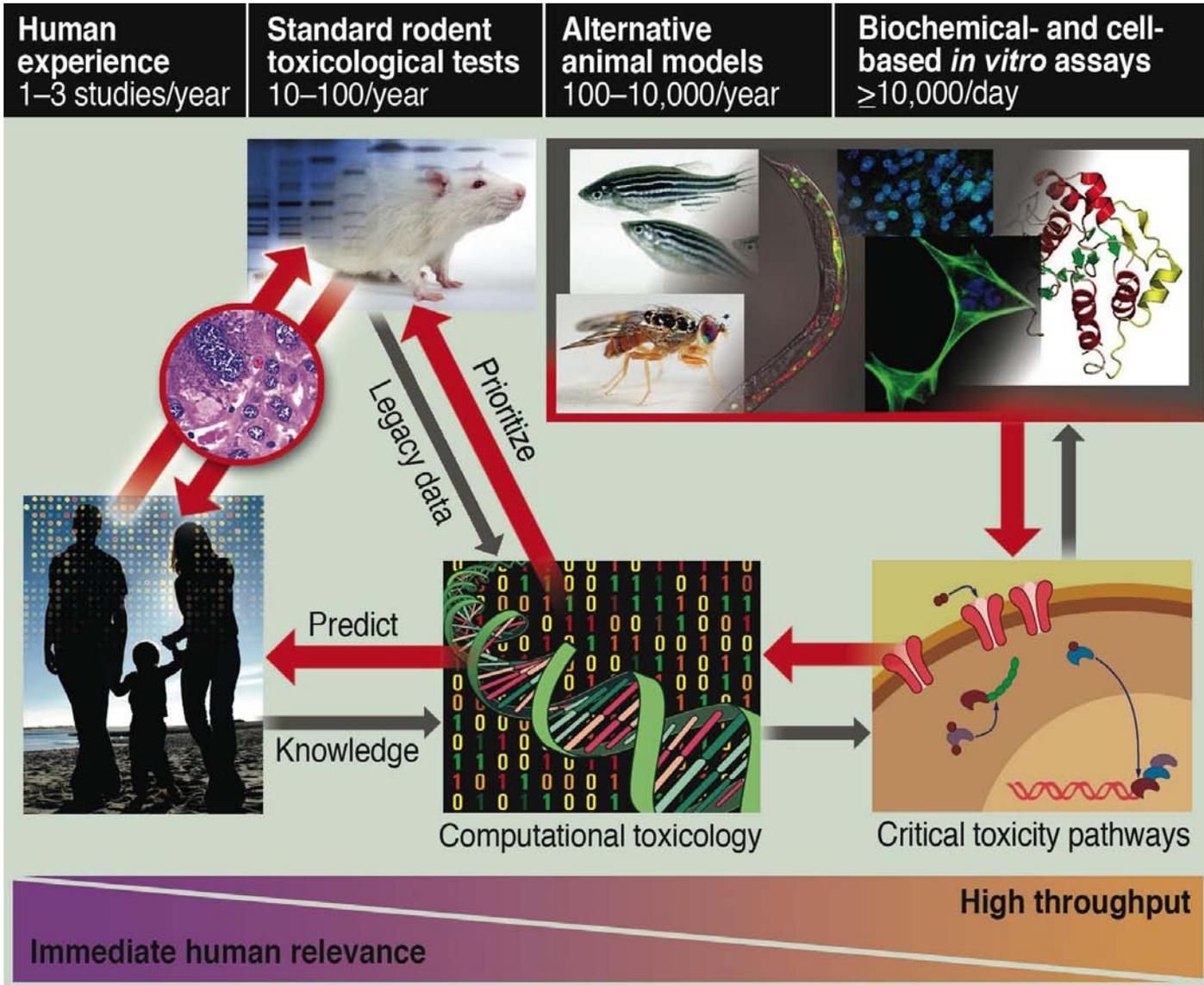
Current Research and Testing Areas

- Cellular phone radiation
- Combination HIV therapies
- Dietary supplements
- DNA-based therapeutics
- Drinking water contaminants
- Endocrine disruptors
- Green chemistry
- Herbal Medicines
- Nanoscale materials
- Occupational exposures
- Persistent organic pollutants
- Phototoxicants





Transforming Environmental Health Protection



Collins, FS, Gray, GM,
Bucher, JR (2008) *Science*
319:906-7



Interagency Coordination on Toxicity Testing

- Nomination of chemical exposures for testing and research
 - FDA priority chemicals
 - ATSDR under the Comprehensive Environmental Response, Compensation, and Liability Act
- Evaluation of nominations and study plans
 - Interagency Committee on Chemical Evaluation and Coordination
 - NTP Executive Committee
- Interagency agreements with FDA/NCTR, CDC/NIOSH, and EPA to carry out testing and research activities
 - Bisphenol A, herbals, dietary supplements, nanoscale materials, mold, phthalates, and phthalate mixtures
 - Characterization of occupational exposures
 - Exposure assessment in occupational settings

New Opportunities for Collaboration with NIEHS

- Health and Environment is a priority
- New issues are emerging
- We need the best individual and team science to address complex diseases and complex environmental impacts.
- We need to improve integration across research disciplines and with all partners.
- We need to improve our translation of basic science into human health protection.

Thank You

