

Deepwater Horizon Disaster: NIEHS Response



**Notice of Intent to Publish a Request for
Applications for Deepwater Horizon Research
Consortia: Health Impacts and Community
Resiliency (U19)
Notice Number: NOT-ES-10-012**



GuLFSTUDY

A health study for oil spill clean-up workers and volunteers



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Primary objectives

- Assess short-and long-term health effects associated with oil spill clean-up
- Create a resource for future collaborative research
 - Focused hypotheses
 - Specific subgroups



Eligible study population

- Adults ≥ 18 years
- Worked one or more days in any clean-up task (paid or volunteer) or completed training but did not work (n= \sim 80,000)
 - From NIOSH roster, Petroleum Education Council (worker training), Parish, and other lists
 - Includes BP employees, contract workers, community workers, Federal workers (and unexposed federal comparison group)
 - Residents of 5 gulf states or from other states if performed high exposure tasks



Study Design

Enrollment questionnaire (phone or in-person)
completed by ~55,000 (70% response)

- General health, lifestyle, usual occupation, socioeconomic factors, demographics
- Clean-up activities, living accommodations
- Spill-related health effects
- Stress, depression, anxiety, perceived risk

Cohort Characteristics

Select 27,000 for active participation in long-term clinical study

- Selected by stratified (on exposure, gender) random sampling
- All clean-up job categories (~20,000 exposed)
- Oversample higher exposed and/or smaller job categories
- 7,000 not exposed
- 4,000 local, 2,000 non-local, 1,000 Federal
- Maximize or limit to 5 gulf states

Baseline Information

At Home visit

Detailed questionnaire

- Health, occupation, residence, mental health

Biospecimens

- Blood, urine, toenail clippings and/or hair, saliva for DNA

Environmental samples

- Household dust wipe, tap water

Physiologic and anthropometric measures

- Height, weight, waist, blood pressure, lung function

Cohort – follow-up

Full cohort

- Annual newsletter
- Annual contact information updates
- Passive surveillance
 - Cancer registries, vital statistics, other record linkage
 - Electronic medical records?

Active Sub-cohort

- Telephone questionnaires years 2 and 4



Biomedical Surveillance Sub-cohort

Identify 6,500 for subsequent more intensive study

- Supplemental laboratory studies at baseline
 - CBC, urinalysis, lymphocytes extracted and cryopreserved

Collaborative protocols developed via RFP

- Clinic based, mobile van, or in-home assessment – years 1 and 3 (with 70% response, n=5,000)
 - Biological and environmental samples
 - Comprehensive pulmonary function tests
 - Neurological/neurobehavioral testing
 - Laboratory tests
 - Immunologic, liver, cytogenetics, DNA damage, renal, other
 - Subgroup studies (e.g. reproductive function)

Enrollment period

Phased roll-out

- One area (AL) first 4-6 weeks
- “Mini-pilot” for protocols and approaches



Enrollment and baseline data collection 12-18 months, starting late November 2010

- Complete enrollment 9-12 months
- Complete home visits 12-18 months
 - Enroll as many as possible while still exposed
 - Collect information on exposures while memory fresh
 - Enroll cohort while contact information still valid

Exposure reconstruction

- Evaluate data collected by OSHA, NIOSH, EPA, BP, CG, others
- Industrial Hygiene assessment - exposures by task, location, time
 - Consider PPE use, Hazard Evaluations
 - Draw on government, industry expertise
 - Include local experts
- Other data
 - Weather, GIS-based information (e.g. fishing area closings, occupational and residential proximity to crude oil, burning, waste sites)
 - Existing exposure measurements and experimental data
- Create job-exposure matrices and GIS based exposure measures

Opportunities for scientific collaboration

- Special populations (e.g. Vietnamese fishermen and families)
- Family members of clean-up workers
- Reproductive health (17% women)
- Comprehensive medical surveillance of specific subgroups
 - Reactive airways disease
 - Neurological symptoms

GuLF study investigators

NIEHS PIs

- Dale Sandler
- Lawrence Engel
- Richard Kwok

Other NIEHS Investigators

- Aubrey Miller
- Stephanie London
- Christine Parks

Consultants

- Aaron Blair
- John Hankinson
- Exposure consultant TBD





NTP Gulf Oil Spill activities

Compilation and review of relevant hazard information

- Human health effects of prior oil spills
- Toxicology of crude oil
- Availability of adequate hazard data for crude oil constituents
- Assessment of potential for cumulative toxicity

Federal interagency coordination

- Assessment of ongoing toxicological research
- Identification of knowledge gaps

Identify and characterize potentially hazardous materials to which workers, volunteers, residents may be exposed

- Review of federal and state environmental and occupational monitoring efforts
- Acquisition of relevant environmental samples
- Analytical chemistry characterization of source and weathered oil

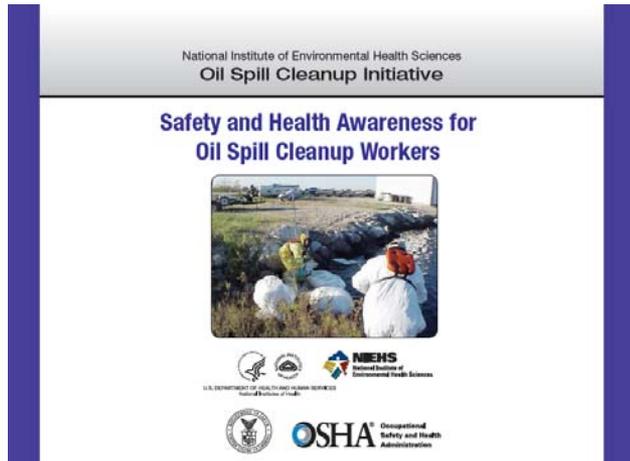
NIEHS Worker Training Program: Gulf Oil Spill Response in partnership with OSHA and NIOSH

- NIEHS developed oil spill response training tool on April 29, 2010 as the spill expands in the Gulf of Mexico.
- NIEHS Staff work with OSHA and NIOSH as part of the Unified Command assessing worker safety issues and concerns.
- NIEHS deployed staff, subject matter experts and awardees for instructor training and worker protection outreach.



BP, USCG, OSHA, NIEHS, and NIOSH meet to assess worker protection issues in the BP Incident Command Center in Houma, LA on Tuesday, May 3, 2010.

- Proper training is a key component of a safe response and cleanup.
- The oil and hazardous materials associated with the cleanup can be hazardous to human health.
- The hazards and issues covered in this training tool are dynamic and require vigilance and flexibility.
- The key to a safe response is attention to the safety issues of your work environment.



Module 2

NIEHS Oil Spill Cleanup Training Tool OSHA

How Can You Protect Yourself from Hazardous Chemicals?

When dealing with health and safety hazards try to control them by using the hierarchy of controls

The diagram illustrates the hierarchy of controls on a risk scale from Low to High. From left to right, the controls are: Elimination or Substitution (Low risk), Engineering Controls (Low to Medium risk), Administrative Controls (Medium risk), and Personal Protective Equipment (PPE) (High risk). A red arrow points from left to right, indicating increasing risk. A 'CAUTION' sign is placed near the Administrative Controls level.

66 WORKER EDUCATION & TRAINING PROGRAM

WTP has developed an online resource tool to assist the training efforts
http://tools.niehs.nih.gov/wetp/public/hasl_get_blob.cfm?ID=8569

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Deepwater Horizon Research Consortia: Health Impacts and Community Resiliency

Purpose:

- Create one or more Community-based participatory research consortia
- Address health issues of concerns to residents

Outcome:

- To better understand the interplay and effects of multiple stressors, including potential exposure to chemical mixtures, dispersants, etc., on human health and well-being of residents in the Gulf region affected by the DWH disaster
- To establish the evidence base needed to inform recovery and develop strategies to promote health and well-being of populations facing this and future man-made and natural disasters

Research Initiative Details

Research activities are expected to be highly responsive to the needs of local communities in the Gulf Coast regions affected by the DWH disaster

The focus is on the general population

Community-based participatory model

- Community organizations located in the Gulf states affected by the DWH disaster in collaboration with academic partners are involved the process of planning, implementing and communicating research

Multi-project program

- Health effects research both population and laboratory-based
- Community vulnerability and resilience research

Health effects research.

- Maternal and child health
- Mental health and behavioral
- Respiratory and cardiovascular
- Dermal
- Immune

Exposure Assessment and Biomonitoring Research

- Analysis of environmental samples and biospecimens
- Methods to predict exposure concentrations
- Characterize exposure pathways including dietary sources

Community Vulnerability and Resilience Research

- Methods to understand causes and consequences
- Assess role of culture and social networks
- Risk perception and effect on health