

**Title Page: Final Progress Report**

**Project title: Multiple Exposures, Multiple Effects: EPICOH-NEUREOH 2008**

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**Grant Number: 1R13OH009408-01**

**Starting and ending dates: June 1, 2008-May 31, 2009**

**Date of report: May 31, 2009**

## Abstract

The purpose of this application was to request conference support for the 20<sup>th</sup> Annual International Conference on Epidemiology in Occupational Health (June 9-11, 2008) and the 10<sup>th</sup> International Symposium on Neurobehavioral Methods and Effects in Environmental and Occupational Epidemiology (June 11-13, 2008) to be held in San Jose, Costa Rica. The theme of the joint conferences was "Multiple Exposures, Multiple Effects". The name for the jointly held conferences was "EPICOH-NEUREOH 2008." The specific aims of the joint conferences were: 1) to promote the exchange of experience and knowledge among the conference participants; 2) to disseminate new knowledge regarding methodologies and investigations; 3) to emphasize the need to address multiple exposures and multiple effects in environmental and occupational health; 4) to motivate conference participants to initiate research and projects using integrated multidisciplinary methodologies; 5) to promote the participation of investigators and students from developing countries; 6) to engage researchers in policy making and community or enterprise level interventions; 7) to train investigators from different countries and specialties in the areas of occupational health, environmental health, epidemiology, and neurotoxicology.

The conference addressed a number of research priorities for NIOSH including the development of new methods, work injuries, cancer, musculoskeletal diseases, reproductive disorders, cardiovascular diseases, neurotoxic effects of work exposures, neurobehavioral changes, risk assessment, and special populations. In addition, because of the nature of the conferences, all NORA sectors were addressed. The conference also addressed priorities identified in Healthy People 2010 including reduction of work related injuries and deaths and exposure to hazardous chemicals including pesticides.

## Background

The Scientific Committee on Epidemiology in Occupational Health under the International Commission of Occupational Health (ICOH) was established in 1980. Symposia have been organized since in the years between the ICOH congresses. The attendance has been between 200-250 scientists active in the field of epidemiology, occupational hygiene, and exposure assessment.

The Scientific Committee on Neurotoxicology and Psychophysiology (SCNP) under the ICOH holds a scientific conference every third year. Attendance at SCNP ranges between 200-250 scientists active in the multiple fields of neurotoxicology and psychophysiology in both environmental and occupational health.

The EPICOH-NEUREOH 2008 conference represented the first time that these two scientific committees of ICOH had a joint academic conference. This conference

shared one overlapping day of scientific content and participants had the option of attending one or both events.

EPICOH-NEUREOH also marked one of the few times that an ICOH scientific committee conference was held in a developing country. Further, it was one of few conferences ever held in a Latin American country. The conferences were organized by the Regional Institute for Studies on Toxic Substances (IRET) at the Universidad Nacional in Heredia, Costa Rica. Sponsors of EPICOH-NEUREOH include: SALTRA (Central American Program for Health in Work), CoPEH: a community of Practice in EcoHealth – Toxics in Latin America and the Caribbean, the Universidad Nacional, the Costa Rican Technological Institute, the International Development Research Center (IDRC), the Colorado Injury Control Research Center (CICRC) at Colorado State University, and OEM Online. The Scientific Committee had 45 members representing 29 different countries. The Advisory Committee included academics from five countries and the Organizing Committee represents ten different countries. The Organizing Committee was divided into a local committee with representatives from three major public universities in Costa Rica: Universidad Nacional, the University of Costa Rica, and the Costa Rican Technological Institute. and an International Committee.

Costa Rica is a country with an extremely high use of toxic substances, both in the form of pesticides, due to its large agricultural sector as well as other substances found in agriculture and other industries. These toxic substances affect worker health as well as the environmental health of those who live in and around areas where they are produced and used. Such exposures have potential outcomes in both children and adults including developmental disorders and neurodegenerative diseases. In addition, there are a number of precarious occupational health conditions that exist for Costa Rican and migrant workers in virtually every industrial sector.

Nonetheless, Costa Rica is a leader in Central America in development, public health and policy-making. During this time of great political and trade-related change in Latin America and the United States, conferences addressing these issues can provide important guidance for targeting new research initiatives. Conferences such as EPICOH-NEUREOH 2008 serve two very important roles for this purpose. First of all, they highlight the necessity to focus on environmental and occupational health for the overall well-being of the population and the sustainable development of the region which is applicable in other parts of the world. Secondly, they help create a research culture in risk assessment and risk management for developing countries in collaboration with developed countries. A rich research culture can assure the use of science for sound policy-making, improvement in human health, and sustainable economic and human development.

**List of terms and abbreviations:** International Conferences on Epidemiology in Occupational Health and on Neurobehavioral Methods and Effects in Environmental and Occupational Epidemiology (EPICOH-NEUREOH); Regional Institute for Studies on Toxic Substances (IRET); Central American Program for Health in Work (SALTRA); Community of Practice in EcoHealth – Toxics in Latin America and the Caribbean

(CoPEH); International Commission of Occupational Health (ICOH); Scientific Committee on Neurotoxicology and Psychophysiology (SCNP).

**Highlights:** This was the first time the two conferences were held together and the first time that these conferences were held in Latin America. The location of the conferences in Latin America allowed the participation of many scientists from the region who are often unable to attend due to economic limitations. Both conferences provided an ideal environment for meetings of international professional networks. The academic exchange between investigators from different countries provided a favorable environment for the formation of new partnerships and collaboration and concrete plans for scientific collaboration across country borders.

**Translation of findings:** Three academic journals participated in the events: The International Journal of Environmental and Occupational Health, Archives of Environmental and Occupational Health and Neurotoxicology. Each expressed an interest in receiving manuscripts from the work presented and all participants were informed they could submit manuscripts from the conference to these journals. Occupational and Environmental Medicine agreed to publish abstracts from EPICOH.

**Outcomes:** A total of 484 people from 52 countries from 5 continents participated in the conference. Of the 52 countries represented, there were 27 low or middle income countries. A total of 80 partial or full scholarships to participants were awarded. A total of 11 keynote addresses were presented by individuals from 7 countries and these were simultaneously translated into Spanish. A total of 232 poster presentations, 190 oral presentations, 72 presentations in mini-symposia, and 25 presentations in panel discussion format were included in the conference.

**Scientific Report:**

The specific aims of the joint conferences were: 1) to promote the exchange of experience and knowledge among the conference participants;

2) to disseminate new knowledge regarding methodologies and investigations;

3) to emphasize the need to address multiple exposures and multiple effects in environmental and occupational health;

4) to motivate conference participants to initiate research and projects using integrated multidisciplinary methodologies;

**Joint EPICOH-NEUREOH Topics**

- Multiple exposures, multiple effects, interactions
- Study design, data analysis
- Exposure assessment and exposure modeling
- Biomarkers
- Gene/environment interactions

- Pesticides
- Physical, chemical, biological and psychological hazards
- Social, cultural and economic determinants; lifestyles
- Monitoring and surveillance
- Interface between occupational/environmental/community/public health; ecosystem approach for human health
- Gender
- Ethics, human rights, social justice
- Neuroepidemiology

5) to promote the participation of investigators and students from developing countries;

6) to engage researchers in policy making and community or enterprise level interventions;

7) to train investigators from different countries and specialties in the areas of occupational health, environmental health, epidemiology, and neurotoxicology.

#### EPICOH Topics

- Work injuries
- Cancer
- Musculoskeletal disorders
- Reproductive disorders
- Respiratory disorders
- Cardiovascular diseases
- Skin diseases
- Ethnicity, migrants
- Informal sector, precarious work

#### NEUREOH Topics

- Neurotoxic disorders in children
- Fetal origins
- Neurotoxic disorders in adults
- Neurobehavioral changes by different neurotoxic agents
- Methods for assessing neurobehavioral deficits
- Animal models in human risk assessment

#### Conference evaluation results:

A total of 38 participants in the conferences completed evaluation forms. Of these, 16.7% were from Europe, 38.9% were from Latin America, 22.2% were from the United States, 11.1% were from Africa, and 2.8% were from Asia. The average scores (based on 1=poor and 5=excellent ) for the overall conference was 4.53; for the contributed papers was 4.26; and for the poster sessions was 4.13. The respondents were asked to rank the sessions they attended. Based on all sessions, the overall ranking was 3.70. Average rankings of the sessions ranged from 2.0 to 4.8.

Publications: Not applicable.