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The National Occupational Research Agenda: A framework to bring research into practice in the United States

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In 1996, at the 25th anniversary of the U.S. National Institute for Occupational Safety and Health (NIOSH), the National Occupational Research Agenda (NORA) was initiated. More than 500 stakeholders from industry, labour, government, academia and public health had identified 21 priority topics where research would make a difference for workers in a decade (See Table 1). NORA committed all partners to work together to advance research in these areas (1).

Table 1. Twenty-one Priority Areas of the National Occupational Research Agenda (NORA) 1996-2005

Disease and Injury

- Allergic and Irritant Dermatitis
- Asthma and Chronic Obstructive Pulmonary Disease
- Fertility and Pregnancy Abnormalities
- Hearing Loss
- Infectious Diseases
- Musculoskeletal Disorders of the Lower Back
- Musculoskeletal Disorders of Upper Extremities
- Traumatic Injuries

Work Environment and Workforce

- Emerging Technologies
- Indoor Environment
- Mixed Exposures
- Organization of Work
- Special Populations at Risk



Research Tools and Approaches

Cancer Research Methods
Control Technology and Personal Protective Equipment
Exposure Assessment Methods
Health Services Research
Intervention Effectiveness Research
Risk Assessment Methods
Social and Economic Consequences of Workplace Illness and Injury
Surveillance Research Methods

Before this time, there had been no national agenda in the U.S. in occupational health. To ensure the carrying out of research in each topic area, a team of members from NIOSH and national stakeholders was created for each of the priority areas and was charged with identifying research gaps and developing research agendas for the nation.

In 2006, at its 35th anniversary, NIOSH sponsored a symposium to look back at the first decade of NORA to evaluate its success. The document "A Focus on Impacts: NORA Research 1996-2005", contains descriptions of more than 400 research projects and the impact of each project (2). The descriptions point out the necessity and the successes of partnerships among researchers, employers, labour and government. The leadership of the NORA teams was described (3). Success was also evaluated by review of funding made available in the priority areas. NIOSH investment in research in the 21 priority NORA topic areas, by NIOSH and university researchers, increased steadily from about \$15 million dollars in 1996 to about \$100 million per year by 2006. Other government agencies funded up to an additional \$30 million each year for researchers at universities. A review of national stakeholder efforts in many countries concluded that such national efforts provide a valuable framework for priority research aimed at impact in the workplace (4).

Magnitude of the problem

Why was a National Agenda formed? Is a National Agenda still needed? In 1996, despite progress during the 25 years since the passage of the Occupational Safety and Health Act, a tremendous toll continued to be inflicted in both human and economic costs in the U.S. This led to the decision to encourage national partnerships to focus research in the priority areas and to the development of NORA. A review of workplace hazards, illness and injury

in preparation for the 2006 evaluation of NORA indicated that much remains to be done.

Each day, approximately 146 million U.S. workers go to their workplaces with the expectation that they will return home healthy and safe (5). However, workplace hazards have a significant impact on workers' physical and psychological health. A recent article commemorating Workers' Memorial Day 2007 estimated that, on average, nearly 16 workers in the United States die each day from injuries sustained at work and 134 die from work-related diseases. Daily, an estimated 11,500 private-sector workers have a nonfatal work-related injury or illness, and more than half will require job transfer, work restrictions, or time away from their jobs as a result. About 9,000 workers are treated in emergency departments each day because of occupational injuries, and approximately 200 of these workers are hospitalized. In 2004, workers' compensation costs for employers totalled \$87 billion (6). Such statistics translate into terrible personal, societal and economic burdens and underpin the commitments of the second decade of NORA.

National Occupational Research Agenda (NORA) 2006-2015

The second decade of NORA (2006-2015) was inaugurated in April 2006 on the 35th anniversary of NIOSH. It continues the emphasis on partnerships, but it has a new structure that is aimed at efficiently moving research results into practice in workplaces (see www.cdc.gov/niosh/nora). NORA now uses a sector-based approach, which includes all employers, all workers and all workplaces in the country. In the U.S., Canada and Mexico, all industry is coded into 20 sectors of the North American Industrial Classification System (NAICS) (7). As shown in Table 2, the 20 NAICS sectors were aggregated into eight sector groupings according to the similarity of their occupational safety and health issues. NIOSH and its partners formed 8 Sector Councils that include participants from industry, labour, academia, public health and government. Leadership in implementing NORA resides in the Sector Councils, which are taking input regarding the worst problems remaining in sectors, in order to develop a sector-based strategic research agenda. The input is collected through national meetings and via the NIOSH web site. Input from partners globally is welcome at www.cdc.gov/niosh/nora/comments.html.

Table 2. The 20 Sectors of North American Industrial Classification System (NAICS) have been grouped into 8 NORA Sector Councils

Sector Councils	NAICS Codes
Agriculture, forestry, and fishing	11
Construction	23
Mining	21
Manufacturing	31-33
Healthcare and social assistance	62
Services	51-56, 61, 71-72, 81, 92
Transportation, warehousing, and utilities	48-49, 22
Wholesale and retail trade	42, 44-45

Each Sector Council strategic research agenda will include sector-specific goals, performance measures, and implementation plans for the nation. These agendas will provide guidance to the entire occupational safety and health community for carrying out critically needed research and moving research results into practice in workplaces. In addition, a Cross-Sector Council has been formed to coordinate priorities that affect multiple sectors and groups of workers

across sectors (e.g. musculoskeletal disorders). Global Collaborations is one of the NORA Cross-Sector programs, because the sharing of solutions to common problems can increase the health and safety of workers on all continents (www.cdc.gov/niosh/programs/global). NIOSH is the steward of NORA and facilitates the work of the NORA Councils. Figure 1 illustrates the structure of NORA 2006-2015.

Figure 1. Structure of NORA 2006 – 2015: Eight Sector Councils and a Cross-Sector Council.



NORA Sector Council Strategic Research Agendas

Currently, the Sector Councils are drafting their strategic research agendas aimed at substantially reducing hazards, exposures, illnesses and injuries in the sectors. Progress can be followed on the NIOSH NORA website at www.cdc.gov/niosh/nora and by subscribing to the monthly NIOSH eNews at <http://www.cdc.gov/niosh/enews/default.html>. When the Sector goals are in place, it will be necessary for NIOSH and external researchers who apply for NORA funds to show how their proposed research meets the goals of the sectors.

The *NORA Sector Council Strategic Research Agenda* will typically include:

1. Strategic (long-term) goals to reduce or eliminate the most important current or anticipated future problems in the sector or a sub-sector;
2. Intermediate (short-term) goals which are critically important to accomplish in order to attain the strategic goal;
3. Performance measures (concrete countable outcomes and timeframes) suitable for tracking annual progress and success in achieving the strategic and the intermediate goals; and
4. Implementation plans (partnerships with employers and workers) to move proven improvements in practice into workplaces.

Construction Sector Example of Sector Research Goals and Performance Measures

Although the various Sector Councils are currently working on developing strategic goals, none are yet complete at this time. Several of the NIOSH programs developed draft goals prior to or in preparation for NORA and some examples are provided here to illustrate the types of research encouraged by NORA and the emphasis on getting research results into practice in the workplace. The NIOSH Construction Program example illustrates one draft strategic goal, two of several short-term intermediate goals that contribute to meeting the long-term strategic goal, and performance measures that commit the program and researchers to a timeframe and provide for the tracking of success.

- o **Construction Strategic Goal:** Reduce the incidence and severity of work-related mus-

culoskeletal disorders in construction work;

- o **Performance measure:** Demonstrate that successful implementation of interventions can lead to 25% reduction in musculoskeletal disorders for targeted tasks and trades, by 2015;
- o **Construction Intermediate Goal:** Identify and evaluate the job demands and associated musculoskeletal problems for workers' capabilities;
- o **Performance measure** Identify and evaluate the job demands and associated musculoskeletal problems for 20 construction job tasks, by 2009;
- o **Construction Intermediate Goal:** Increase the number of effective interventions for reducing workers' exposures to risk factors for musculoskeletal disorders; and
- o **Performance measure:** Identify and evaluate 20 currently available interventions and 5 new interventions by 2012.

Global Collaborations and the Transportation, Warehousing and Utilities Sectors

Data from the U.S. and other nations indicate that road transport injuries are the leading cause of occupational fatalities in many countries. These data led to a NIOSH project entitled *Promoting Global Initiatives for Occupational Road Safety* (<http://www.cdc.gov/niosh/programs/twu/global/>) that benefits workers in the U.S. and worldwide. The project is relevant to workers in transport, manufacturing, trade, construction, and services who have high exposure to road traffic as drivers, pedestrians, or road workers. The project addresses a NIOSH program goal for the Transportation, Warehousing, and Utilities sectors to "Reduce transportation-related incidents in the Transportation, Warehousing and Utilities industries", and a NIOSH global goal to "Enhance global workplace safety and health through international collaborations." This project also addresses priorities of the World Health Organization and is included in the Global Network 2006-2010 Work Plan of the WHO Collaborating Centres in Occupational Health (http://www.who.int/occupational_health/network/2006compendium/en/index.html).

The Promoting Global Initiatives for Occupational Road Safety project is responsive to the global road safety initiatives of the World Health

Organization and the World Bank, which state that deaths from road traffic injuries are projected to increase globally from 1.2 million in 2002 to 1.9 million in 2030, with low- and middle-income nations bearing most of the increase. If effective interventions are not implemented, WHO and the World Bank estimate that by the year 2030 road traffic injuries will become the 8th leading cause of mortality worldwide (8). The human and economic costs of this growing health burden are only beginning to receive attention in international development and in the business community. There is momentum internationally to engage governments, the private sector, non-governmental organizations (NGOs) and donor groups to address this growing epidemic. However, no large scale international initiative addresses the special problems of work-related road fatalities in developing countries. Neither is there adequate recognition that worldwide promotion of road safety by business interests will yield both public safety and workplace safety benefits.

This project invites partners to share good practices and guidance for worker safety on roads in a global electronic library and to implement and evaluate the success of the practices. This project's goal is to demonstrate injury reduction and economic benefit from workplace initiatives to prevent road traffic injuries among workers in the U.S. and globally, so that these approaches will be incorporated into the ongoing global road safety initiatives. More about this project and an invitation to all to partner in the project can be found at www.cdc.gov/niosh/programs/twu/global.

Conclusion

The first decade of the National Occupational Research Agenda (NORA) 1996-2005 advanced research on stakeholder identified topics important for the health and safety of workers, and created a culture of partnership in the country. The second decade of the National Occupational Research Agenda (NORA) 2006-2015 has a sector-based structure and a strategic research approach that should greatly facilitate implementation of research results in workplaces. Global partners are welcome to participate in NORA so that information can be shared and the health and safety of workers everywhere will improve.

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The Global Occupational Health Network

National Policy Frameworks and National Plans for Workers' Health

Dear Reader,

A policy on occupational health and safety was recently launched in Namibia. The Minister of Health, Dr Richard Nchabi Kamwi said that 'a safe and healthy workplace leads ultimately to a highly productive, effective and efficient work environment and thus a measure of success to the country's economic growth and stability'. The spark for this action was provided with the WHO Global Plan of Action on Workers' Health, which was endorsed by the World Health Assembly this year. It states as its first objective "To devise and implement policies on workers' health". This issue of GOHNET provides national examples of policies that concern workplace health and safety generally, as well as policies and action plans for defined groups, such as healthcare workers, women and bar workers. Articles discuss national research agendas and priority setting in occupational health, as well as the benefits of linking occupational and public health issues.

Consecutive GOHNET issues will deal with the remaining objectives of the WHO Global Plan of Action on Workers' Health, which are:

- to protect and promote health at the workplace;
- to improve the performance of and access to occupational health services;
- to provide and communicate evidence for action and practice;
- to incorporate workers' health into other policies.

The Global Plan of Action can be accessed here: www.who.int/gb/ebwha/pdf_files/WHA60/A60_R26-en.pdf

We would be pleased to learn about any examples of national policies and/or action plans from your country.

Happy reading!

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WHO Global Plan of Action on Workers' health and the development of national policies and plans

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Introduction

The 60th World Health Assembly, May 2007, endorsed the Global Plan of Action on Workers' Health, 2008-2017 and urged all Member States to devise national policies and plans for its implementation in consultation with workers, employers and their organizations.

TABLE OF CONTENTS

WHO Global Plan of Action on Workers' Health and the development of national policies and plans by Carlos Corvalan and the WHO Occupational Health Team	1
National occupational health programmes for healthcare workers: by Susan Wilburn	4
Singapore turns a corner in workplace safety and health by Ho Sweet Far and Kanagalingam Umadevi	8
Improving quality and productivity at work in the European Union: The European Strategy for Health and Safety at Work 2007-2012 by Anne Degrand-Guillaud	13
Improving the health of women in the workforce: An Action Plan developed by Canadian researchers and workers representatives by all participants	14
The National Occupational Research Agenda: A framework for bringing research into practices in the United States by Marilyn Fingerhut	19
Priority setting in occupational health research by Rondinone Bruna and Sergio Iavicoli	24
Second Hand Smoke (SHS) and the health of bar workers by Fintan Hurley, Martie van Tongeren, Jon Ayres, Sean Semple	26
Meeting report: Sustainable Collaborations for Workers' Health: meeting the needs and bridging the gaps in the WHO European Region by Rokko Kim and Suvi Lehtinen	29
Remembering Professor Marco Maroni	32
Announcements	
Upcoming conferences	33
● Contributors' information	34
● WHO contacts	35
● Joining GOHNET	35