

BACKGROUND

In April 1996, The National Institute for Occupational Safety and Health (NIOSH) and its partners unveiled the National Occupational Research Agenda (NORA), a framework to guide occupational safety and health research into the next decade. NORA is a tool not only for NIOSH but for the entire occupational safety and health community. Approximately 500 organizations and individuals outside NIOSH provided input into the development of the Agenda. Prior to NORA, there had been no national research agenda in the field of occupational safety and health (nor any other field) which had captured such broad input and consensus. This unique process resulted in remarkable agreement about the top 21 research priorities (see box at right).

NORA arose out of a need to address the changes in the U.S. workplace as well as the increasingly diversified workforce. The distribution of jobs in the U.S. economy continues to shift from manufacturing to services. Longer hours, compressed workweeks, shiftwork, reduced job security, and part-time and temporary work are realities of the modern workplace. The U.S. workforce will grow to an estimated 147 million by the year 2005, with minorities representing 28 percent of the workforce and women approximately 48 percent.

NORA also provides a means to target research in areas with the highest likelihood of

reducing the still significant toll of workplace illness and injury. Each day, an average of 9,000 workers sustain disabling injuries on the job, 16 workers die from a workplace injury, and 137 workers die from work-related diseases.

NORA Priority Research Areas

Disease and Injury

- Allergic and Irritant Dermatitis
- Asthma and Chronic Obstructive Pulmonary Disease
- Fertility and Pregnancy Abnormalities
- Hearing Loss
- Infectious Diseases
- Low Back Disorders
- Musculoskeletal Disorders of the 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

These injuries and deaths continue to inflict a tremendous toll in both human and economic costs. A NIOSH-funded study published in 1997 showed that indirect and direct costs of occupational injuries and illnesses totaled \$171 billion (\$145 billion for injuries and \$26 billion for diseases) in 1992. These costs compare to \$33 billion for AIDS, \$67 billion for Alzheimer's Disease, \$164 billion for circulatory diseases, and \$171 billion for cancer.

These numbers alone point to the need for continued occupational safety and health research. However, research efforts in both the public and private sector face limited fiscal resources. Through NORA and its collaborative structure the nation is better positioned to address the toll of workplace injury, illness, and death.

IMPLEMENTATION

The development of NORA was only the first step in the effort between NIOSH and its many partners to guide and promote occupational safety and health research. Since NORA was announced, there has been a common commitment to implement the Agenda, primarily by increasing activities and resources in the 21 priority areas.

Twenty Partnership Teams (the two musculoskeletal priority research areas are being addressed by one team) were formed to assist in the implementation of the Agenda. Each team consists of a team leader, NIOSH researchers, and external partners. The 20

Partnership Teams have brought together 130 NIOSH researchers and 160 external members including representatives from academia, labor, industry, health and safety organizations, the insurance industry, and other government organizations.

A NORA Liaison Committee and a Federal Liaison Committee also have important roles in the implementation of NORA. Both committees provide outreach and help guide the progress and direction of NORA implementation.

Grant Funding

NORA has been successful on many levels, including stimulating new research needed to address the problem of workplace injury and illness. In 1998, NIOSH and three Federal partners awarded the largest infusion of funding ever by the Federal government for extramural occupational safety and health research (part of a three-year, \$24 million commitment). NIOSH joined with the National Heart, Lung, and Blood Institute (NHLBI), the National Institute of Environmental Health Sciences (NIEHS), and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) to award about \$8 million in grants in ten NORA priority research areas, with NIOSH awarding 38 grants related to the 1998 NORA Request for Applications (RFA) and the partner NIH Institutes awarding 12 grants.

In 1999, NIOSH and six other Federal agencies announced two new RFAs totaling at least \$9 million in nine priority research areas. In March 1999, NIOSH, in partnership with five other NIH Institutes, announced a new RFA to

target grant funding in eight NORA priority research areas (committing to at least \$7.5 million in grant funds). The NIH cosponsors for this FY 99 NORA grants initiative are: the National Cancer Institute (NCI), NHLBI, the National Institute on Aging, the National Institute on Deafness and Other Communication Disorders, and NIEHS. In April 1999, NIOSH, the Environmental Protection Agency, and NCI announced the availability of \$1.5 million for grant applications for research that focuses on the development of cancer risk assessment methods and practices.

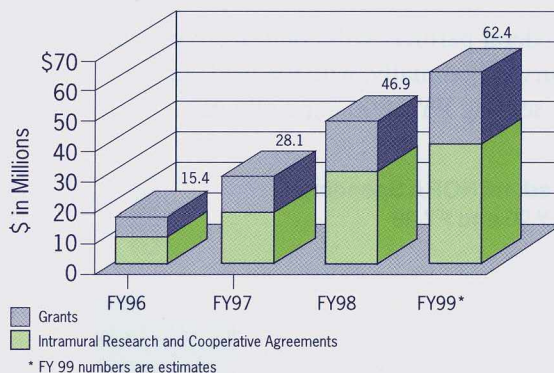
NIOSH also committed additional resources in FY 99 to investigator-initiated awards in all 21 priority areas through its regular grants process. NORA is achieving its goals of improved partnership and increased research in the 21 priority research areas.

NIOSH NORA Funding

Early in the NORA process, NIOSH made a commitment to redirect some of its resources to the 21 NORA priority areas. Out of an overall FY 96 operating budget of \$165.3 million, the NIOSH baseline investment in the NORA priority areas was \$15.4 million (approximately 9% of the budget). Of this, \$8.7 million was devoted to intramural research (NIOSH-conducted) and cooperative agreements (NIOSH-funded extramural research that NIOSH initiates and participates in) and \$6.7 million to research grants (extramural investigator-initiated projects). A redirection of resources in FY 97 nearly doubled this investment to \$28.1 million.

A new \$5 million special Congressional appropriation to NIOSH in FY 98 for NORA, coupled with additional reinvestment of baseline monies into NORA priority areas, resulted in a \$46.9 million investment (about 25% of the budget) in NORA priority areas for FY 98. In FY 99, continued Congressional support for NORA as well as ongoing internal resource allocation has resulted in an estimated \$62.4 million of NIOSH research funds (31% of the budget) directed at NORA priority areas.

NIOSH NORA Investment



Such an increase is tangible evidence of NIOSH's commitment to NORA. This shift is particularly notable given existing Congressional mandates and obligations that limit how much of the budget can be redirected.

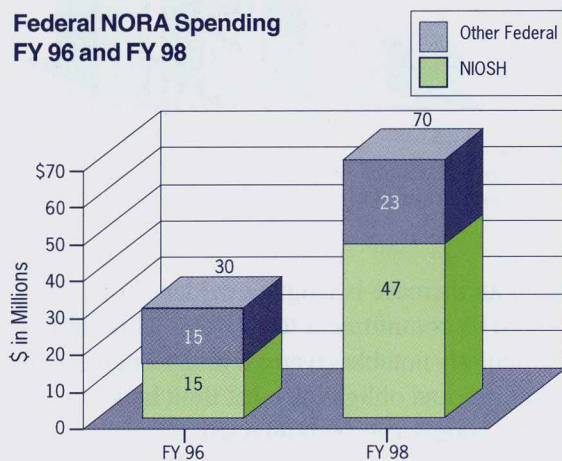
Other Federal Funding

As part of NORA, a survey of Federal occupational safety and health research is conducted biennially. The first survey, covering FY 96, provided a baseline identifying a total of only \$39 million spent for all occupational safety and health research

outside of NIOSH for a total Federal investment of \$204 million. The second survey, covering FY 98, welcomed five new Federal respondents. Even with the additional respondents, the total spending in occupational safety and health research by Federal agencies in FY 98 was only \$218 million (NIOSH \$187 million and other Federal agencies \$31 million). The FY 96 baseline for NORA-related research from non-NIOSH Federal sources was about \$15 million. In FY 98, the non-NIOSH Federal total spent on NORA-related research was \$23.4 million.

Federal partners will continue to perform the survey biennially, with the next survey assessing FY 2000 expenditures.

**Federal NORA Spending
FY 96 and FY 98**



Team Accomplishments

The Partnership Teams have also had much success in collaborating with key stakeholders, defining research needs, and leveraging resources for research. Sixteen teams have published or are writing white papers and

NIOSH and its partners have sponsored 20 major meetings related to NORA as a whole or to specific priority areas. The teams have also developed surveys, established graduate-level training programs, participated in continuing medical education workshops, and developed documents.

Additional successes for NORA include NORA's selection as a semifinalist for the prestigious Innovations in American Government Award sponsored by the Ford Foundation and administered by Harvard University's John F. Kennedy School of Government.

The number of organizations using NORA as a model for creating research agendas or other types of partnership and planning is also noteworthy. Examples include the European Agency for Safety and Health at Work, the Department of Defense, the Japanese National Institute of Industrial Health, and the Chemical Industry Institute of Toxicology.

To obtain a copy of the **National Occupational Research Agenda** (No. 96-115), the **NORA Update 1999** (No. 99-124) or **Partnership Team Products** call:

1-800-35-NIOSH
(1-800-356-4674)

or visit the NORA site on the NIOSH Home Page at:

<http://www.cdc.gov/niosh/norahmpg.html>