



# Proceedings of the 1<sup>st</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium

June 12-13, 2003  
Salt Lake City, Utah

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The Rocky Mountain Center for Occupational and Environmental Health  
and  
The Department of Mechanical Engineering  
University of Utah

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# PROCEEDINGS

## 1<sup>st</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium

Salt Lake City, Utah, USA  
June 12-13, 2003

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# **ACKNOWLEDGEMENTS**

Grateful acknowledgement is made to the student and faculty presenters at the 1<sup>st</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium. Appreciation is also expressed to the abstract and paper reviewers.

Many thanks and much appreciation go to Ms. Connie Crandall and Ms. Luz Dominguez for their major efforts in planning, advertising, and coordination of the conference. Particular thanks are due to Ms. Roanna Keough, whose administrative abilities were indispensable in the organization of the conference and preparation of the conference proceedings.

The sponsors of the conference are also gratefully acknowledged for the funding and resources that made the conference a reality.

Donald S. Bloswick  
Editor and Conference Chair



# INTRODUCTION

The National Institute for Occupational Safety and Health (NIOSH), and its partners in the public and private sectors, have developed the National Occupational Research Agenda (NORA) to provide a framework to guide occupational safety and health research in the next decade--not only for NIOSH but also for the entire occupational safety and health community.

Approximately 500 organizations and individuals outside NIOSH provided input into the development of the Agenda. This attempt to guide and coordinate research nationally is responsive to a broadly perceived need to address systematically those topics that are most pressing and most likely to yield gains to the worker and the nation. Fiscal constraints on occupational safety and health research are increasing, making even more compelling the need for a coordinated and focused research agenda. The Agenda identifies 21 research priorities which reflect a remarkable degree of concurrence among a large number of stakeholders (<http://www.cdc.gov/niosh/nora.html#intro>).

This proceedings contains the presentations and poster presentations made at The 1<sup>st</sup> Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium", held at the University of Utah on June 12 & 13, 2003. There were 40 attendees and 20 presenters from 8 universities in 4 states. This was the first of what is hoped to be an annual conference series intended to assemble interested students (undergraduate and graduate) and young/new investigators from the Intermountain Region (UT, WY, ND, SD, MT, CO) and other interested parties, in a forum where NORA-related research can be presented.

While the proposals and papers are reviewed, and a formal proceedings published, the goal of this conference is to facilitate research presentations by students and young/new investigators in a non-threatening atmosphere. It is expected that, for many students, it will be the first formal presentation of their research.

The proceedings are also available online at [www.mech.utah.edu/ergo/nora/](http://www.mech.utah.edu/ergo/nora/).



## Thursday, June 12, 2003

- 7:45 - 8:00 CHECK-IN
- 8:00 - 8:20 CONTINENTAL BREAKFAST
- 8:20 - 8:30 Dr. Donald Bloswick, Ph.D., University of Utah  
*WELCOME*
- 8:30 - 8:50 Dr. Bernadine Kuchinski, Ph.D., CDC NIOSH  
*CDC NIOSH REPRESENTATIVE*
- 8:50 - 9:10 Kathleen L. Sitzman, MS, RN, Weber State University  
*AN EXPLORATORY STUDY OF MOTOR VEHICLE USE IN HOMECARE NURSES*
- 9:10 - 9:30 Andrea Mahugh, M.S., Montana Tech  
*COMPARISON OF MINE RESCUE FIELD THERMOREGULATION DATA VERSES LABORATORY DATA AT HIGH AMBIENT TEMPERATURES AND HUMIDITIES*
- 9:30 - 9:50 Phillip Drinkaus, M.S., University of Utah  
*THE STRAIN INDEX: USING TASK LEVEL OUTPUTS TO EVALUATE JOB RISK*
- 9:50 - 10:20 BREAK
- 10:20 - 10:40 Phillip Drinkaus, M.S., University of Utah  
*THE HAND ACTIVITY LEVEL: USING TASK LEVEL OUTPUTS TO EVALUATE JOB RISK*
- 10:40 - 11:00 Glen West, M.S., University of Utah  
*BIOMECHANICAL AND PSYCHOPHYSICAL ASPECTS OF HANDWHEEL TURNING*
- 11:00 - 11:20 Richard Lawrence, University of Utah  
*BACILLUS ANTHRACIS SPORES (ETIOLOGIC AGENT OF ANTHRAX) IN AIR*
- 11:20 - 11:40 Matthew D. Kafka, South Dakota School of Mines & Technology  
*EFFECTS OF SLEEP DEPRIVATION*
- 11:40 - 1:10 LUNCH
- 1:10 - 1:30 Spencer K. Reese, University of Utah  
*MEASURING THE EFFECTS OF ERGONOMIC RISK FACTORS ON TACTILE SENSATION*

Thursday, June 12, 2003 (continued)

- 1:30 - 1:50 Dale Stephenson, Ph.D., CIH, University of Utah  
*EVALUATION OF SAMPLING METHODS TO MEASURE EXPOSURE TO DIESEL PARTICULATE MATTER IN AN UNDERGROUND METAL MINE*
- 1:50 - 2:10 Dave Wallace, MSPH, CIH, Utah State University  
*PREPARING STUDENTS FOR RESEARCH, AT A NON-RESEARCH IH PROGRAM*
- 2:10 - 2:40 **BREAK**
- 2:40 - 3:00 Angela Johnson, South Dakota School of Mines & Technology  
*ARE PEOPLE IN THE RESTAURANT BUSINESS WALKING TOO MUCH?*
- 3:00 - 3:20 David P. Gilkey, D.C., Ph.D., Colorado State University  
*OCCUPATIONAL LOW BACK PAIN IN RESIDENTIAL CARPENTERS: OWAS CATEGORIES AND FORCES OF COMPRESSION AND SHEAR*
- 3:20 - 3:40 Janeth C. Ihejiawu, MSPH, University of Utah  
(Jeff Throckmorton, CIH, University of Utah)  
*EVALUATION OF MERCURY VAPOR EXPOSURE WHILE PREPARING DENTAL FILLINGS WITH PRE-ENCAPSULATED AMALGAMS*
- 3:40 - 4:00 William A. Mecham, M.S., C.P.E., P.E., C.S.P, University of Utah  
*THE EFFECTS OF FLOOR WEAR ON SLIP RESISTANCE MEASUREMENTS (A PILOT STUDY)*
- 4:00 - 4:20 Richard F. Seseck, Ph.D., MPH, CSP, University of Utah  
*PROLONGED PROVOCATIVE WRIST FLEXION AS AN IMPROVED METHOD FOR CARPAL TUNNEL SYNDROME SCREENING*

## Friday, June 13, 2003

- 8:00 - 8:20 CONTINENTAL BREAKFAST
- 8:30 - 8:50 Dirk P. Yamamoto, MSPH, University of Utah  
(Dean Lillquist, University of Utah)  
*RESPIRABLE SILICA EXPOSURES DURING DRY MACHINING OF ALUMINUM-SILICON ALLOYS*
- 8:50 - 9:10 Tim Hill, University of Utah  
*A SURVEY OF UTAH FARMERS TO DETERMINE THE VIABILITY OF THE INTERNET FOR DISTRIBUTING HEALTH AND SAFETY INFORMATION*
- 9:10 - 9:30 Mark Dumas, MSPH, Salt Lake Community College  
*IMPROVING QUALITY AND EFFECTIVENESS OF HEALTH AND SAFETY TRAINING*
- 9:30 - 9:50 Robert A. Pinter, M.D., University of Utah  
*OCCUPATIONAL EXPOSURES AND THE RISK OF COLON CANCER*
- 9:50 - 10:20 BREAK
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- 11:20 - 11:40 WRAP-UP
- 11:40 - 1:10 LUNCH
- Posters
- Eric M. Wood, M.D., MPH, University of Utah  
*BACK, NECK, AND SHOULDER PAIN IN HOME HEALTH CARE WORKERS*
- Kelly Tuohig, University of Utah  
*PROMOTING THE FIELD OF PUBLIC HEALTH TO THE NEXT GENERATION: A UNIVERSITY AND HIGH SCHOOL COLLABORATION TO ASSESS CHILDREN EXPOSURE TO DIESEL SCHOOL BUS EMISSIONS*



# WELCOMING REMARKS

Bernadine Kuchinski, Ph.D.

Occupational Health Consultant, NIOSH/OEP

Dr. Kuchinski opened the session and welcomed the guests on behalf of NIOSH.

The presentation was an informative talk relating to the elements of the NIOSH Training Grant Program and its emphasis on academic and research training for student trainees.

NIOSH's mandate for training and education stems from Section 21 of the Occupational Health and Safety Act of 1970, which states that "...the Secretary (NIOSH)...shall conduct directly or by grants or contracts, education programs to provide an adequate supply of qualified personnel to carry out the purposes of the Act...."

Congress currently appropriates approximately \$16 million/year to NIOSH to support academic training programs to help graduate and train occupational health and safety professionals and researchers. Universities compete for funds annually in response to a Program Announcement published in the Federal Register. Funding helps pay for student support, partial faculty and adjunct faculty salaries and equipment.

Training grants are divided into two categories- Education and Research Centers (ERCs) and Training Project Grants (TPGs). ERC grants are comprehensive Centers providing training programs in occupational medicine, industrial hygiene, occupational safety and occupational health nursing, as well as continuing education programs for practicing professionals and outreach to the regional community. Interdisciplinary interaction is a key element of ERCs, mandating the establishment of a plan to have students interact in course work, field experiences, clinical experiences and internships. There are currently 16 ERCs located in all regions of the country. NIOSH Training Project Grants (40 in number in FY 2003) provide technical and professional training through academic training programs in one discipline, e.g., industrial hygiene, occupational medicine, etc. Several provide undergraduate training for occupational safety and health professionals. Most programs are unique in that they meet the local and regional needs for trained professionals in the field of occupational safety and health.

In FY 1999, in support of the NIOSH National Occupational Research Agenda (NORA), NIOSH established a competitive Pilot Project Research Training Program (PPRT) within ERCs. Twelve ERCs currently have support for this program. The purpose was to enhance the research training capabilities of the ERCs by developing mechanisms to support PPRT programs emphasizing the NORA research topics. It also was intended to develop research expertise in research trainees and new investigators throughout the regions. Requirements included a.) management elements, e.g., advisory boards, scientific review, collaboration with regional institutions, b.) establishment of review criteria, c.) collaboration with institutions in the region, and d.) evaluation of the program.

In FY 2002 and FY 2003, NORA research support was allocated by Congress and provided to the ERCs for the purpose of initiating an overall plan to support research training in the ERCs by

supporting faculty and students, assisting in the conduct of NORA research, and instituting research conferences and symposia.

The Office of Extramural Programs in NIOSH supports projects relating to all NORA priority areas. A review of those areas that received funding in FY 2001 was presented. Most funding was allocated to the areas of Special Populations at Risk, Intervention Effectiveness, Surveillance Research, Asthma and COPD, and Exposure Assessment.



