

# PROCEEDINGS

## 3rd Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium

Salt Lake City, Utah, USA  
April 21-22, 2005

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## **ACKNOWLEDGEMENTS**

Grateful acknowledgement is made to the student and faculty presenters at the 3<sup>rd</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 and Ms. Manndi Carlile Loertscher, 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. Blowski  
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/>).

This proceedings contains the presentations made at The 3rd Annual Regional National Occupational Research Agenda (NORA) Young/New Investigators Symposium," held at the University of Utah on April 21 & 22, 2005. This was the third of 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.



Thursday, April 21, 2005

- 7:45 - 8:00 CHECK-IN
- 8:00 - 8:20 CONTINENTAL BREAKFAST
- 8:20 - 8:25 Donald S. Blowski, University of Utah  
*WELCOME*
- 8:25 - 8:30 Kurt T. Hegmann, University of Utah  
*INTRODUCTION*
- 8:30 - 9:10 John Howard, CDC, NIOSH  
*NANOTECHNOLOGY AND NORA2*
- 9:10 - 9:30 Kathy Chang, University of Utah  
*UTILITY OF PARESTHESIAS IN DIFFERENT COMBINATIONS  
OF DIGITS TO PREDICT CARPAL TUNNEL SYNDROME AND  
NERVE CONDUCTION ABNORMALITY*
- 9:30 - 9:50 Dan Nye, University of Utah  
*COMPARISON OF INDOOR AND OUTDOOR PM 2.5  
MEASUREMENTS AT A UTAH ELEMENTARY SCHOOL*
- 9:50 - 10:20 BREAK
- 10:20 - 10:40 Andrew Merryweather, University of Utah  
*UTAH ERGO ANALYZER POSTURE CLASSIFICATION TOOL VS.  
PEAK MOTUS® MOTION ANALYSIS IN 2D WRIST  
FLEXION/EXTENSION AND ULNAR/RADIAL DEVIATION*
- 10:40 - 11:00 Tammy Lynn, Montana Tech of the University of Montana  
*WARNING LABELS ON PLASTIC BAGS: COMPARISON OF TEXT  
FORMATS*
- 11:00 - 11:20 Sharon Davis, University of Utah  
*DEVELOPMENT OF AN ERGONOMICS SCREENING TOOL FOR  
MULTI-TASK JOB ANALYSIS*
- 11:20 - 11:40 Janet Blackstone, University of Washington  
*PHYSICAL EXPOSURE DIFFERENCES BETWEEN CHILDREN  
AND ADULTS ON STANDARD COMPUTER INPUT DEVICES*
- 11:40 - 1:10 LUNCH

Thursday, April 21, 2005 (continued)

- 1:10 - 1:30 Matthew W. Reading, University of Utah  
*TWO INDICATORS OF UNDERREPRESENTATION OF  
MAXIMUM GRIP STRENGTH*
- 1:30 - 1:50 Brad Husberg, NIOSH Alaska Field Station  
*EXPERIENCES WITH AN OCCUPATIONAL HEALTH  
MULTIDISCIPLINARY APPROACH IN TRAINING, THE  
WORKPLACE, AND IN RESEARCH*
- 1:50 - 2:10 Eric Wood, University of Utah  
*ATTITUDES, KNOWLEDGE, AND PREPAREDNESS ON USE OF  
RESPIRATORY PROTECTION AMONG PHYSICIANS IN  
TRAINING*
- 2:10 - 2:30 Courtney Dupuis and Meghan Hoopes,  
Montana Tech of the University of Montana  
*AN ASSESSMENT OF INJURIES AND ILLNESSES ASSOCIATED  
WITH JACKLEG DRILLING IN UNDERGROUND MINING*
- 2:30 - 3:00 BREAK
- 3:00 - 3:20 William J. Reimann, University of Utah/Black Diamond Equipment  
*AN INDUSTRY AND UNIVERSITY COLLABORATIVE SAFETY  
EFFORT*
- 3:20 - 3:40 Sally Bardsley, Montana Tech of the University of Montana  
*THE EFFECTS OF RESPIRATOR WEAR ON BLOOD PRESSURE  
AND HEART RATE DURING MODERATE STEADY-STATE WORK*
- 3:40 - 4:00 Juan Carlos Rodriguez, University of Utah  
*INTER-RATER RELIABILITY ANALYSIS OF THE UTAH  
eANALYZER*
- 4:00 - 4:20 J. Ryan Stanfield, University of Utah/Paramed Systems  
*DEVELOPMENT AND EVALUATION OF IMPROVED PATIENT  
TRANSPORT SYSTEM*

Friday, April 22, 2005

- 7:45 - 8:00 CHECK-IN
- 8:00 - 8:30 CONTINENTAL BREAKFAST
- 8:30 - 9:30 Michael S. Morgan, Sc.D., CIH  
Special Presentation: Second Annual Paul S. Richards, MD,  
Endowed Distinguished Visiting Lectureship in Occupational  
Medicine  
*BIOMARKERS OF INHALATION EXPOSURE - DON'T HOLD  
YOUR BREATH (PLEASE!)*
- 9:30 - 10:00 BREAK
- 10:00 - 10:20 Kathleen L. Sitzman, Weber State University  
*EXPOSURE TO BLOOD AMONG HOME HEALTHCARE NURSES*
- 10:20 - 10:40 Kurt Haden Church, University of Utah  
*AN INVESTIGATION OF NOISE LEVELS IN AN ADVENTURE  
EQUIPMENT MANUFACTURING FACILITY: IDENTIFICATION  
OF PRIMARY PROBLEM SOURCES WITH RECOMMENDED  
ABATEMENT PROCEDURES*
- 10:40 - 11:00 Hannah Edwards, University of Utah  
*FAMILY HISTORY AS A RISK FACTOR FOR CARPAL TUNNEL  
SYNDROME IN AN OCCUPATIONAL COHORT*
- 11:00 - 11:20 Wendy Campbell, Boise State University  
*OCCUPATIONAL EXPOSURE TO SNOWMOBILE EMISSIONS  
AT YELLOWSTONE NATIONAL PARK*
- 11:20 - 11:40 Richard F. Sesek, University of Utah  
*THE UTAH LIFTING INDEX: AN EXPLORATION OF LOW BACK  
PAIN PREDICTIVE MODELS*
- 11:40 - 12:00 WRAP-UP
- 12:00 LUNCH



## OPENING REMARKS

I want to express my appreciation for being invited to present at the 2005 NORA Symposium in Salt Lake City.

The 21st century will bring us many new occupational safety and health challenges. The field of nanotechnology is but one that is advancing rapidly and will likely revolutionize many global industries. As with any new technology, we face many unknowns--all of which raise questions concerning the implications for occupational safety and health. The National Institute for Occupational Safety and Health (NIOSH), together with its partners like the University of Utah's Rocky Mountain Center for Occupational and Environmental Health, is committed to ensuring worker protection as the field of nanotechnology develops.

Since my presentation in Salt Lake City, NIOSH has developed the document *Approaches to Safe Nanotechnology: An Information Exchange with NIOSH* to raise awareness of potential safety and health concerns from exposure to nanomaterials. The document also addresses current and future research needs essential to understanding the potential risks that nanotechnology may have to workers. I invite everyone reading these words to provide feedback, comments, or suggestions regarding the *Approaches to Safe Nanotechnology* document by going to [http://www.cdc.gov/niosh/topics/nanotech/nano\\_exchange.html](http://www.cdc.gov/niosh/topics/nanotech/nano_exchange.html). As our knowledge grows, NIOSH plans to provide additional and continuing valuable guidance to the safe handling of nanoparticles and other safe approaches to nanotechnology. This will be an effort that evolves as the technology advances and our knowledge and experience grows.

There is no doubt that there are many challenges for us as the future of occupational safety and health unfolds in the 21st century. To chart our course, though, it is crucial that the current students and faculty at the University of Utah join with NIOSH to develop partnerships and collaborations to promote the transfer of both scientific and policy research findings into practical, cost-effective, evidence-based interventions for each of the many workplace health and safety challenges we face.

Thank you and I wish each of you a safe, healthful, and secure workplace.

John Howard, M.D.  
NIOSH Director

