

**Review of Progress Implementation Report for
NIOSH Respiratory Disease Research Program**

Submitted by Board of Scientific Counselors

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BSC Working Group Members

**David Bonauto
Carol Rice
Michael Larranaga**

Recommendations In Progress:

Recommendation

Systems for Surveillance: NIOSH should provide appropriate resources for and engage in high-priority occupational [respiratory] disease surveillance.

Progress: 1 2 3 4 5

Brief Justification: The RDRP has made significant progress for providing appropriate resources for engaging in high-priority occupational respiratory disease surveillance. The RDRP’s involvement was instrumental in MSHA’s promulgation and implementation of the respirable coal dust rule. The Government Accounting Office (GAO) conducted two investigation of the rule’s scientific basis and found that the proposed respirable coal dust Permissible Exposure Limit (PEL) would reduce miners’ risk of disease. RDRP was extensively engaged and expended significant effort on both reviews. The GAO found the PEL proposed by MSHA was appropriately based on epidemiological data (much of that data was from the NIOSH-RDRP) and allowed the evaluation of exposure-response relationships. In addition, because of the new MSHA rule, RDRP has prepared for the expansion of health surveillance services for both underground and surface miners. The RDRP has taken an initiative for innovation in approaches to work-related respiratory disease surveillance, including the use of information from the healthcare system.

Impact: 1 2 3 4 5

Brief Justification: The impact of the RDRP’s work on occupational health has been substantial. For example, eWoRLD and NORMS have helped to shape public policy; MSHA has cited the RDRP mortality data as an important motivator in promulgating the new respirable coal mine dust rule. Interestingly, NIOSH data was used by proponents and opponents alike of OSHA’s proposed silica rule. This highlights the relevance of the RDRP’s work.

RDRP assisted with coding and submitting of data that facilitated participation in the new occupational health indicator (OHI) by states with NIOSH funding. OSHA’s recently announced National Emphasis Program for occupational exposure to isocyanates was motivated in part by interaction with RDRP surveillance investigators. The RDRP has contributed to a cross-Institute effort to further include occupational health information in electronic health records that could be used to improve clinical care, but also to improve our ability to obtain morbidity and mortality surveillance data from healthcare systems. MSHA chose to announce the respirable coal dust rule at NIOSH’s Morgantown facility to honor the contributions of the RDRP.

We applaud NIOSH efforts to meet this recommendation and hope that RDRP continues to have the resources to progress strategically to maximize impact in workplace respiratory disease surveillance.

Recommendation

The committee recommends that the effectiveness of digital radiography in CWP surveillance should be an important continuing research priority, which will extend to all interstitial lung diseases.

Progress: 1 2 3 4 5

Brief Justification:

There has been a logical and strategic progression of research and implementation activities to substitute digital chest imaging for film-based images in pneumoconiosis surveillance. In the recent review period, NIOSH has conducted validation studies on the use of the new ILO digitized standard images for classification of small pneumoconiotic opacities. NIOSH with partners are creating a chest image repository (CIR) for training, education, and research efforts.

RDRP is implementing the use of digital chest imaging in the Coal Workers Health Surveillance Program. NIOSH's anticipation and development of a safe and secure system for electronic submission and review of digital chest images is highly commendable. Likewise the provision of hardware and software support to B-Readers is an important example of government facilitating both clinical services and research efforts.

NIOSH has laid the foundation for B-reader training, certification and re-certification examinations using digital formats, which will likely be implemented during the next review period.

Impact: 1 2 3 4 4.5 5

Brief Justification: The progress thus far in the program has been foundational – building a system for submission, review and storage of electronic chest images. Additionally, efforts are underway to train and certify B-Readers using electronic format.

Preliminary results support the very high likelihood of success for this program – the high proportion of chest images submitted to the CWHSP in digital format (72%) in the first year bodes well for the future success of this program.

We ask the RDRP to consider if this recommendation should be retired at the next review cycle. This program has been successful. If RDRP agrees, we suggest that RDRP provide a new recommendation for review in the next cycle.

Recommendation

In the flavoring industry, the RDRP response to the identification of diacetyl-induced bronchiolitis obliterans has led to surveillance efforts in multiple locations in an effort to detect and prevent disease. The evaluation committee agrees that continued surveillance, prevention of exposures, and mechanistic research to better understand this disease should continue to be a high priority for the RDRP.

Progress: 1 2 3 4 5

Brief Justification: NIOSH is conducting cutting edge basic toxicology and field research in flavoring related lung disease. Significant outputs are peer-reviewed journal articles and the impending release of NIOSH criteria document for diacetyl and 2,3-pentanedione. The contributions of the HHE program are notable in conducting field work to support recognition of a broader spectrum of respiratory disease from flavorings.

Impact: 1 2 3 4 5

Brief Justification: Publication of the final NIOSH criteria document and recommended exposure limits will be a major accomplishment. The interest of the stakeholder community and usage of NIOSH web information on this topic demonstrate meaningful impact. The basic toxicology research has fostered expanded work by other research groups or organizations. It may be valuable to evaluate the use of the NIOSH criteria document.

Recommendation

In terms of chronic obstructive pulmonary disease (COPD), understanding the contribution of occupational exposures is difficult. To understand this issue, the evaluation committee strongly recommends that, for planning preventive strategies, the RDRP continue to support population-based studies of associations between occupational exposures and COPD to better define groups of workers at greatest risk.

Progress: 1 2 3 4 4.5 5

Brief Justification: Progress has been made in facilitating the collection of spirometry data on the NHANES and adding industry and occupation questions to the NHANES. We congratulate NIOSH on expanding the I/O questions to include data on the longest held occupation and industry. Peer-reviewed publications from the NIOSH supplement to NHIS have been published.

There have been a variety of studies focusing on the relationship between work settings and COPD, including those related to the World Trade Center. NIOSH continues efforts to improve spirometry quality through training program sponsorship.

Impact: 1 2 3 4 4.5 5

Brief Justification: The new MSHA Respirable Coal Dust Rule requires health screening for COPD symptoms and spirometry. The OSHA proposed silica rule mandates baseline and periodic spirometry for secondary prevention of COPD in silica-exposed workers.

NIOSH's spirometry poster is widely disseminated by spirometry manufacturers (~90,000 posters). A reference guide for clinicians has been developed with 13,000 copies of the guide being disseminated. SPIROLA software for evaluation of longitudinal spirometry data is publicly available, with the web-based version in development.

We applaud NIOSH efforts to meet this recommendation, but suggest that RDRP outline a longer-term strategy to satisfy this recommendation or propose an alternative recommendation on which to focus. Efforts to identify and prevent respiratory diseases in specific working populations regardless of the specific disease (COPD or not) may be a reasonable substitute.

Recommendation: Because the contribution of occupational exposures to the burden of adult asthma is high, work in pursuit of the four WRA subgoals can have a potentially large impact on improved occupational safety and health among the U.S. workforce.

Progress: 1 2 3 4 5

Brief Justification: RDRP has pursued efforts to collaborate with health care providers and the health care system. An important initiative is the NORA project to develop clinical decision support capabilities in the Electronic Health Records. This project includes the development of prompts for clinicians to collect and consider occupational information. RDRP has been able to incorporate questions about assessment and management of adult asthma in the work survey. RDRP has leveraged several large studies to assess the extent, severity, burden, and risk factors for WRA and WRA prevention across a broad range of industries and occupations. The RDRP added questions about WRA to the Behavioral Risk Factor Surveillance System (BRFSS) Asthma Call-back Survey, which collects information from adults who report an asthma diagnosis.

The RDRP has made progress in identifying, documenting, and characterizing emerging causes of WRA. Studies have evaluated WRA in healthcare workers and NIOSH is evaluating relationships to exposures such as cleaning agents, disinfectants, and other known asthmagens in healthcare. Studies addressed WRA in wildland firefighting and restoration work after flooding. The RDRP has also evaluated the impact of IAQ on WRA and the effectiveness of building remediation in preventing WRA associated with poor indoor air quality. RDRP partnered with the American Chemistry Council and participating facilities to demonstrate a medical monitoring program evaluating workers at toluene diisocyanate production facilities in the U.S.

Impact: 1 2 3 4 4.5 5

Brief Justification: RDRP has leveraged its existing capabilities with those of other organizations (American Chemistry Council, NIH, EPA, OSHA, CPSC, NIST, etc.) to carry out research and other activities to prevent the onset of WRA. NIOSH's work on IEQ and its website have been influential, specifically with regards to indoor dampness and mold. RDRP work has led to an increased recognition of hazards associated with a variety of agents and has been instrumental in assigning asthmagen designations to substances included in the Association of Occupational and Environmental Clinics Exposure Code List.

RDRP has leveraged large national surveys to address WRA and occupational health indicators (OHIs) for asthma. Additionally, RDRP work was instrumental in motivating OSHA to implement a National Emphasis Program on occupational exposure to isocyanates. These activities have set the foundation for a significant future impact on worker safety and health, and specifically WRA.

We applaud NIOSH efforts to meet this recommendation and hope that RDRP continues to progress strategically to maximize impact in correctly diagnosing and documenting the impact of prevention strategies for WRA.