

NIOSH Respiratory Diseases Research Program (RDRP)

NIOSH Board of Scientific Counselors Meeting

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WORKPLACE SAFETY AND HEALTH



Outline of Presentation

- Importance of Work-Related Respiratory Diseases
- Overview of RDRP
- Examples of RDRP Efforts and Impacts in Response to Highest Priority NA Recommendations
 - ◆ Occupational Respiratory Disease (ORD) Surveillance
 - ◆ Digital Chest Imaging
 - ◆ Flavorings-Related Lung Disease
 - ◆ Chronic Obstructive Pulmonary Disease (COPD)
 - ◆ Work-Related Asthma

Importance of Work-Related Respiratory Disease

- Substantial morbidity & mortality
 - ◆ 15% of adult asthma, COPD are attributable to work
 - ◆ Work-Related Asthma (2012): 2.8 million
 - ◆ Work-Related COPD (2011): 2.3 million
 - ◆ Pneumoconiosis mortality (2010): 2,037 deaths
- Substantial economic burden (medical costs, deaths only)
 - ◆ Work-Related Asthma (2007): \$2.3 B
 - ◆ Work-Related COPD (2007): \$3.9 B
- Issues continue to emerge:
 - ◆ Indium tin oxide, flavorings, nanoparticles, natural gas extraction by hydraulic fracturing, e-cigarette emissions, global climate change

Overview of RDRP

- The broad range of individuals and groups supported by NIOSH to do work that is relevant to occupational respiratory disease
- Includes intramural and extramural research
- Annual review and updating of RDRP goals by cross-Institute steering group
- Recent formal reviews
 - ◆ 2008: Program review by National Academies
 - ◆ 2009: Implementation plan review by BSC
 - ◆ 2012: Program review by BSC
 - ◆ 2014: Current program review



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 - ◆ Work-Related Asthma

ORD Surveillance

- *Public health surveillance* is the ongoing systematic collection, analysis, interpretation and dissemination of health data for purposes of improving health and safety
- Critical for planning, priority setting, and tracking progress
- Unfortunately, ORDs are poorly captured by current surveillance data such as BLS' *Survey of Occupational Injuries and Illnesses*

ORD Surveillance Products

- Work-Related Lung Disease Report (e-WoRLD): major source for up to date national morbidity, mortality, and hazard surveillance information
- National Occupational Respiratory Mortality System (NORMS): enables users to easily perform customized queries of national mortality data
- Coal Workers' Health Surveillance Program Data System: enables customized queries of national morbidity data
- State-Based Surveillance: State-Based Occupational Health Surveillance Clearinghouse; Occupational Health Indicators (new OHI for WRA this year)



Innovative Approaches to Surveillance

- Electronic Health Records (EHRs) are a major focus
- Institute-wide effort with significant RDRP involvement
- Potential for improved morbidity and mortality surveillance
- Potential for improved quality of care

EHRs – Accomplishments

- Accomplishments:
 - ◆ Technical issues: engagement with HL-7, development of information model, functional profile, glossary, data sharing template
 - ◆ Demonstrations: “Connectathon” demonstrated ability to share information; feasibility of patient I/O data entry
 - ◆ Workshop on privacy and security issues
- In progress: real-time capture and coding of I/O in clinical settings; development and demonstration of clinical decision support
- Recognition by ONC in recent Federal Register Notice



Digital Radiography

- NIOSH research formed the basis for new regulations in 2012 enabling use of digital radiography in the Coal Workers' Health Surveillance Program (CWHSP)
- NIOSH has since approved 52 facilities as providers of digital images for the CWHSP
- First year of implementation (2013): 2986 of 4151 chest images (72%) submitted to the CWHSP were digital
- 2014: DOL finalized new Black Lung Compensation Program regulations enabling use of digital images, modeled after the NIOSH regulations

Updating B Reader Program to Digital Format

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CHEST RADIOGRAPHY

The NIOSH B Reader Study Syllabus

NIOSH strongly recommends pre-test preparation for examination participants to assure familiarity with the ILO Classification System and associated [Roentgenographic Interpretation Form](#). Pre-test preparation is extremely important because anyone who fails the initial examination must wait ninety days before re-testing. The examination is difficult: only about half of the examinees pass.

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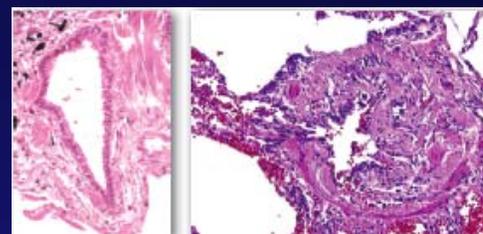
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- Have made interim digital (“digitized”) materials available
- Undertaking full update of learning materials, certification examination, and recertification examination
- Working with American College of Radiology





Flavorings-Related Lung Disease



- Recent work:
 - ◆ New setting: coffee manufacturing
 - ◆ Broader spectrum of disease recognized - restrictive spirometric impairment
 - ◆ Criteria document: 2 sections updated and posted for public comment; finalization of document anticipated around end of calendar year.
- Flavorings experience has facilitated recognition by others of obliterative bronchiolitis in new settings
 - ◆ Fiberglass workers
 - ◆ Veterans returning from Iraq and Afghanistan

Work- Related COPD

- Collaboration with population based-studies is an important source of information
 - ◆ National Health and Nutrition Examination Survey (NHANES): RDRP provided questions for surveys and supported use of spirometry
 - ◆ Multi-Ethnic Study of Atherosclerosis (MESA): opportunity to evaluate emphysema documented by chest CT as an endpoint
- Studies evaluating specific at-risk populations: coal mine dust, agriculture, WTC dust, etc.

Early Detection of Work-Related COPD

- Efforts to improve the quality of spirometry: technician training, educational materials
- Longitudinal spirometry software: “SPIROLA” monitors spirometry program quality, aids in evaluating individual data, useful for health protection and promotion
- RDRP research influenced MSHA to include a requirement for periodic spirometry to be offered to all coal miners; and OSHA to propose similar requirements for silica-exposed workers
- RDRP research was used in an American Thoracic Society statement addressing occupational spirometry



Notice

NIOSH Current Intelligence Bulletin: Promoting Health and Preventing Disease and Injury through Workplace Tobacco Policies

A Notice by the Centers for Disease Control and Prevention on 08/15/2014



ACTION Notice Of Draft Document For Public Comment.

SUMMARY The National Institute for Occupational Safety and Health of the Centers for Disease Control and Prevention announces the availability of a draft Current Intelligence Bulletin (CIB) entitled NIOSH Current Intelligence Bulletin: Promoting Health and Preventing Disease and Injury through Workplace Tobacco Policies for public comment. To view the notice and related materials, visit http://www.regulations.gov and enter CDC-2014-0013 in the search field and click "Search."

Public comment period: Comments must be received September 15, 2014.

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Publication Date: Friday, August 15, 2014

Agencies: Department of Health and Human Services

Public comment period through September 15



Work-Related Asthma (WRA)

Wide Range of Efforts:

- Surveillance (collaboration with national studies, state-based) – new OHI indicator for asthma caused or made worse by work
- Productive research portfolio
- Indoor dampness and mold – NIOSH Alert
- Isocyanates –TDI criteria document under development
- Cleaning & disinfection workgroup
- “Prevention of Occupational Asthma” website

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