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Title: A Translation Project: How best to communicate epidemiology to improve protection of miners health

Organization: University of California, Berkeley

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Focus Area: Injury and Disease Exposure and Risk Factors: Surveillance and Epidemiology Methods

SYNOPSIS

Problem Statement: Studies of miners have historically underestimated the chronic health effects related to occupational exposures due to bias from Healthy Worker Survivor Effect (HWSE). Without correcting for this bias, results of epidemiologic studies can suggest that toxic exposures are only minimally hazardous - or even protective. When studies lead to such counter-intuitive results, people on the ground do not take the findings seriously – nor should they. Analytic methods, known as g-methods, are available to correct for the bias. These methods, however, are complex, both to describe and to implement. For this reason, manuscripts applying g-methods have been published only in academic journals with a statistically-inclined readership. This literature has not been accessible to those who directly influence mining exposures or make occupational health policy. This is the point of departure for this proposed project.

Research Approach: We will adopt an iterative and multidisciplinary approach for identifying which communication methods and channels are most effective to use in the translation of HWSE and g-methods, as well as more the basic concepts of relative versus absolute risk. Audience-based research will also inform the strategy, content, messaging and diffusion of the series of written and/or recorded modules directed to stakeholders, including company and union health and safety personnel, other management and worker representatives, and thought leaders in mining industry trade associations, occupational health policy makers, MSHA District managers, and training staff at the National Mine Health and Safety Academy. These modules will explain why failure to account for this bias leads to substantially underestimated risks and, ultimately, to practices and policies that may fail to provide adequate protections. The project will be focused on effective communication, with modules designed to grab – and sustain – the attention of the key stakeholders by pitching the presentations to their needs and interests. They will be technically accurate (although less complete or nuanced than the literature) and communicated in a clear, engaging, and compelling way. As illustrative examples, we will use data from several Alpha funded projects: our current and previous studies of COPD, ischemic heart disease, and lung cancer in relation to diesel exhaust and dust exposure in the extended Diesel Exhaust in Miners Study (DEMS I and II), and our past study of lung cancer, silicosis, and silica exposure in diatomaceous earth miners.

To facilitate these goals, we will engage in a series of cross-cutting interviews with stakeholders in the mining community and the policy/regulatory arena. These interviews will begin early in the first year and continue, iteratively, throughout the project period to keep us on track and ensure that the materials we develop are useful for the targeted audiences. In the end we will also inform and provide technical assistance to representatives of NIOSH, trade associations, and the National Mine Health and Safety Academy, who are in a position to translate and communicate how to reduce health risks, such as silicosis, COPD, IHD, and lung cancer, from mining exposures.

Impact: As occupational epidemiologists, we recognize that unless individuals positioned to use the information from our scientific work to modify mining practices actually do so, our work will not result in protecting miner health. To this end, our project has been designed to promote the voluntary adoption of new preventive practices, and to a lesser extent, to improve the inputs into the regulatory process.