

COMMENTS

MSHA – Lowering Miners Exposure

Steven Markowitz MD, DrPH, Commoner Center, City University of New York

(Comments are highlighted in bold text)

Proposed Medical Surveillance for Metal and Nonmetal Miners

32. MSHA is proposing to require medical surveillance for MNM miners. Medical surveillance is already required for coal miners under [30 CFR 72.100](#) and has played an important role in tracking the burden of pneumoconiosis in coal miners but is not currently required for MNM miners. MSHA's proposal would require MNM mine operators to provide each miner new to the mining industry with an initial medical examination and a follow-up examination no later than 3 years after the initial examination, at no cost to the miner. It would also require MNM mine operators to provide examinations for all miners at least every 5 years, which would be voluntary for miners. Is there an alternative strategy or schedule, such as voluntary initial or follow-up examinations, tying the medical surveillance requirement to miners reasonably expected to be exposed to any level of silica or to the action level that would be more appropriate for new MNM miners? Should the rule make each 5-year examination mandatory? Should the 5-year examination be mandatory for coal mine operators as well? Please provide data or cite references to support your position.

Currently active MNM miners should be offered voluntary medical evaluations within a reasonable time period after the rule becomes effective. There are a large number of such miners, and feasibility dictates that that completing such evaluations for all who choose to have them will take some time. But, waiting 5 years to offer much less to complete all such examinations is excessive. The rule should specify a time frame during which such initial exams for should be offered to all current miners.

It appears that new miners would be offered examinations every 3 years but that current miners would be offered exams at 5 year intervals. The logic of such a discrepancy is not apparent. Given the time course of silicosis and related NMRD and the incidence of such diseases described in the rule's Preamble, reasonably early detection of such diseases requires that medical evaluations be offered every 3 years, not every 5 years. OSHA, for example, requires offering of medical examinations to asbestos-exposed workers on an annual basis. Silicosis, especially sub-acute silicosis and silicosis that develops in younger workers, may significantly progress within a few years. Miners are entitled to learn about possible silicosis and NMRD on a three year basis and thereby have the opportunity to reduce exposure before the disease(s) become too severe.

Mining employees with any potential exposure to silica in mines should be able to have periodic medical evaluations. The Preamble enumerates the risk of silicosis and NMRD miners at the proposed action level (Table VI-6), thereby providing the rationale for offering exams at or below such exposure levels. Exposure levels at and below the action

level and how they vary over time are not likely to be well-characterized, given the proposed monitoring scheme in the rule, thereby supporting the logic of offering exams to any worker in the MNM environment who has non-trivial exposure to silica.

Mining employers should be required to offer medical evaluations to employees, but such medical examinations should not be required of mining employees as a condition of employment. Knowledge of one's personal health status belongs first and foremost to each person and should be controlled by each person. This right is reflected, for example, in HIPAA and other confidentiality safeguards and applies as well to workers' health. There are exceptions, such as infectious diseases (e.g., COVID-19) where the worker themselves become the source of exposure and that knowledge is needed to control exposure to others. These exceptions are not relevant to exposure to silica in the mining environment.

Recognizing that medical evaluations should not be required, important efforts should be made to educate workers and encourage their participation in periodic medical evaluations so that they may monitor their own health.

33. MSHA's proposed medical surveillance requirements for MNM miners do not include some requirements that are in MSHA's existing medical surveillance requirements for coal mine operators in [30 CFR 72.100](#). For example, § 72.100 requires coal mine operators to use NIOSH-approved facilities for medical examinations. Should MNM operators be required to use NIOSH-approved facilities for medical examinations? Coal mine operators also are required to submit for approval to NIOSH a plan for providing miners with the examinations specified. This is because NIOSH administers medical surveillance for coal miners with requirements for coal operators, but not MNM operators, in NIOSH standards ([42 CFR part 37](#)). Should the plan requirements be extended to MNM operators? However, the proposed requirements also include some requirements for MNM operators that are not included for coal operators. For example, the proposed provisions require operators of MNM mines to provide MNM miners with periodic medical examinations performed by physicians or other licensed health care professionals (PLHCP) or specialists including a history and physical examination focused on the respiratory system, a chest X-ray, and a spirometry test. The proposed rule also requires a written medical opinion be provided by the PLHCP or specialist to the mine operator regarding the miner's ability to wear a respirator. MSHA seeks comment on the differences between the medical surveillance requirements for MNM operators in this proposed rule and the existing medical surveillance requirements for coal mine operators in § 72.100. MSHA also seeks comment on how best to collect health surveillance data from PLHCPs and specialists to track MNM miners' health, for example how to know when pneumoconiosis cases occur. MSHA seeks comments on alternative approaches to scheduling periodic medical surveillance. MSHA proposes to require operators to keep medical surveillance information for the duration of a miner's employment plus 6 months. The Agency seeks comments on this proposed requirement and on any alternative recordkeeping schedules that would be appropriate. Please provide supporting information.

Whatever medical or health surveillance data are collected by mine operators, they should be required to keep such data for the duration of the mining employment plus 20 to 30 years. OSHA requires that employers keep employees' medical records for 30 years after they leave employment (<https://www.osha.gov/laws-regs/standardinterpretations/1999-04-15->

1#:~:text=Exposure%20records%20must%20be%20maintained,of%20employment%20plus%2030%20years.). Given the long latency of silicosis, NMRD and lung cancer, having access to prior medical records that date back many years may be helpful in the diagnosis and determination of causation for many employees. This is especially true in a fragmented health care system where frequent changes in health providers and administrative disorganization make obtaining prior medical records very challenging.

34. MSHA's proposed medical surveillance requirements for MNM miners would require operators of MNM mines to provide miners with periodic medical examinations performed by PLHCP or specialists, including a history and physical examination focused on the respiratory system, a chest X-ray, and a spirometry test. MSHA seeks comment on whether use of any new diagnostic technology (*e.g.*, high-resolution computed tomography) for the purposes of medical surveillance should be used.

There is ample evidence that low dose chest CT scan (LDCT) would be the appropriate radiographic technology for the accurate and timely screening for silicosis.

Li et al compared low dose chest CT scan with chest x-ray (digital radiography) among ~900 coal mine workers for the detection of CWP in China. Low dose CT scan was far superior to digital radiography in detecting nodules consistent with CWP (Li et al. 2017: [10.3760/cma.j.issn.1001-9391.2017.09.009](https://doi.org/10.3760/cma.j.issn.1001-9391.2017.09.009))

Du et al compared high versus low dose chest CT scan in the detection of lung nodules among coal miners in China and found no differences in image quality or detection of lung nodules consistent with CWP (Du et al. 2016: [10.3760/cma.j.issn.1001-9391.2016.09.009](https://doi.org/10.3760/cma.j.issn.1001-9391.2016.09.009)). This study demonstrated that the radiation doses associated with high or “normal” dose chest CT scans are not needed to detect CWP findings.

I co-authored a study published in 2013 that showed that the low dose chest CT scan was 3 to 5 times more sensitive in detecting asbestos-related non-malignant chest fibrosis than chest x-rays among nuclear weapons workers in the United States (Miller et al. Comparison of x-ray films and low-dose computed tomographic scans: demonstration of asbestos-related changes in 2760 nuclear weapons workers screened for lung cancer. J Occup Environ Med. 2013;55(7):741-5.)

More recently, Harris et al used low dose CT scans in Australian asbestos-exposed individuals and found significant interstitial lung changes in people with modest levels of asbestos exposure (Harris et al. Low dose CT detected interstitial lung abnormalities in a population with low asbestos exposure. AJIM 64: 567-575. February 2021)

The primary goal of medical surveillance of workers is early detection of disease or dysfunction to permit decision-making. LDCT is superior to the chest x-ray in the early detection of silicosis. As such, LDCT should be the test of choice for medical surveillance and early diagnosis.

A disadvantage of the LDCT is that the B reading system of pneumoconiosis classification cannot be used for reading the LDCT. An alternative reading system, the International Classification of HRCT for Occupational and Environmental Respiratory Diseases (ICOERD), can be used, though few physicians in the U.S. are currently trained in its use. Alternatively, radiology readings of intestinal abnormalities on LDCT can be used for reporting with the goal of developing a targeted standardization system for such readings. This issue has recently been addressed by a professional organization of radiologists in Australia. ([Royal Australian and New Zealand College of Radiologists. Imaging of Occupational Lung Disease, 2019, 12 pp.]

Importantly, early disease detection and subsequent notification of the individual worker that he or she may have occupational lung disease takes precedence over standardized disease reporting for public health purposes, however important the latter is. The LDCT is superior in accomplishing the former task. As such, the use of LDCT should be endorsed in the new MSHA rule.

Chest LDCT scans are also endorsed for the early detection of lung cancer (USPSTF, 2021).

LDCT scans have effectively detected early lung cancers in workers exposed to occupational carcinogens (Markowitz AJPH, 2018: [10.2105/AJPH.2018.304518](https://doi.org/10.2105/AJPH.2018.304518) ; Welch JOEM 2019: [10.1136/oemed-2018-105431](https://doi.org/10.1136/oemed-2018-105431))

MSHA recognizes silica as a cause of lung cancer, including when there has been silica exposure in the absence of silicosis. Silica-exposed mining employees who are aged 50 or over and have silicosis or who have a 20 or more pack-year history of smoking cigarettes should be offered annual LDCT chest scan for the early detection of lung cancer.

This recommendation of LDCT for lung cancer detection is reflected in the Final Rule adopted by OSHA for beryllium-exposed workers. Per OSHA, Section 1910.1024(k)(3)(ii)(F): “ A low dose computed tomography (LDCT) scan, when recommended by the PLHCP after considering the employee's history of exposure to beryllium along with other risk factors, such as smoking history, family medical history, sex, age, and presence of existing lung disease.” (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1024>)

35. MSHA's proposed medical surveillance requirements would require that the MNM mine operator provide a mandatory follow-up examination to the miner no later than 3 years after the miner's initial medical examination. If a miner's 3-year follow-up examination shows evidence of a respirable crystalline silica-related disease or decreased lung function, the operator would be required to provide the miner with another mandatory follow-up examination with a specialist within 2 years. For examinations that show evidence of disease or decreased lung function, MSHA seeks comment on how, and to whom, test results should be communicated.

36. MSHA requests comments as to whether the proposed provisions should include a medical removal option for MNM miners who have developed evidence of silica-related disease that is

equivalent to the transfer rights and exposure monitoring provided to coal miners in [30 CFR part 90](#) (part 90). Under part 90, any coal miner who has evidence of the development of pneumoconiosis based on a chest X-ray or other medical examinations has the option to work in an area of the mine where the average concentration of respirable dust in the mine atmosphere during each shift to which that miner is exposed is continuously maintained at or below the applicable standard. Under part 90, coal miners are entitled to retention of pay rate, future actual wage increases, and future work assignment, shift and respirable dust protection. MSHA seeks comment on whether this medical removal option should be provided to MNM miners. What would be the economic impact of providing MNM miners a medical removal option? Please provide supporting information and data.

According to the same rationale underlying Part 90 in the coal dust standard (30 CFR part), workers in the MNM sector should be offered the same medical removal option. Unequal treatment of mining employees according to coal versus MNM sectors would be a gross injustice.