

CT/PET scanning and other modalities including biopsy may be required unless radiologic stability can be demonstrated. One recent study demonstrated the utility of magnetic resonance imaging (MRI) using the T2W sequence in differentiating PMF from lung cancer.²⁸

Strengths of this study include a large sample of radiographs previously identified as having PMF; three B Reader interpretations for each radiograph; and a standardized and straightforward data collection tool. No true gold standard exists for determining the presence of PMF, however plain chest radiographs are the most widely used technique to screen for pneumoconiosis. Classification of chest radiographs has subjective components; therefore, to minimize impacts of reader variability three Readers characterized the radiographs in this study. The Readers did not agree on every case of PMF. However, for the metrics we were measuring (shape/size, location) the findings were overall consistent among the interpretations performed by the Readers. Classifying digitized radiographs is not an optimal practice. Therefore, a potential limitation of our study is that the performance of ILO classification of digitized radiographs originally acquired as analog film has not been rigorously studied. This change in technique may have introduced some variability relative to past classifications of film radiographs.

Since this study required collection of data beyond the standard ILO reading B Readers are asked to perform for our surveillance program, the B Readers could not be entirely blinded to the objectives of the study. The impact of this cannot be fully assessed, however given the consistency of the findings we have confidence that the overall characterization of large opacities we observed is robust.

There is some indication that current coal mine dust exposures and pneumoconiosis patterns may not be similar to historical observations. Whether the cases and characteristics represented in this report are typical of what may have been observed in the past or reflect new patterns cannot be ascertained because we limited our cases from 2000 to 2015. However, our findings are broadly consistent with the historical descriptions and textbook definitions of PMF so this is likely not a significant factor. Having a data-driven empirical understanding of the diversity of large opacity radiographic presentations is important for clinical, epidemiological, and medico-legal purposes. Our findings establish a clear pattern that can be used as a baseline to measure whether disease configurations change over time.

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Disclosure statement

No potential conflict of interest was reported by the authors.

Agency disclaimer

The findings and conclusions in this report are those of the authors and do not necessarily represent the views of the National Institute for Occupational Safety and Health. Mention of product names does not imply endorsement by NIOSH/CDC.

IRB

This study used existing radiographs, received a waiver of informed consent, and was approved by the NIOSH Institutional Review Board (15-DRDS-03XP).

Author contributions

CNH had full access to all of the data in the study and takes responsibility for the integrity of the data and the accuracy of the data analysis, including and especially any adverse effects. CNH, DJB, TM, RC, and ASL contributed substantially to the study design, data analysis and interpretation, and the writing of the manuscript.

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