

# AUTHORS' RESPONSE (APRIL 30, 2018) TO THE LETTER TO THE EDITOR CONCERNING THE PAPER "HISTOLOGICAL FINDINGS AND LUNG DUST ANALYSIS AS THE BASIS FOR OCCUPATIONAL DISEASE COMPENSATION IN ASBESTOS-RELATED LUNG CANCER IN GERMANY"

Dear Editor,

Thank you very much for the opportunity to respond to the second letter to the Editor [1] concerning our paper "Histological findings and lung dust analysis as the basis for occupational disease compensation in asbestos-related lung cancer in Germany" [2].

This paper scientifically evaluated all the data from 2015 from the German Mesothelioma Register [3] including the lung dust analysis and compared the asbestos fiber burden in the human lungs to asbestos fiber exposure at work based on fiber years, and to radiological findings. The pathological diagnosis of asbestosis was the only way to demonstrate the causal connection between asbestos exposure and their disease for 68 insured persons. Without the pathological diagnosis these occupational diseases under section 4104 [4] would have been rejected because exposure did not total 25 fiber years, and radiological evaluation did not reveal any bridge findings. In conclusion, if suitable lung tissue were available, we recommended histological findings and the lung dust analysis as a complementary examination. We consider this histological examination as essential before rejecting occupational disease as defined under section 4104.

We would like to comment the criticism raised by the above mentioned letter.

According to the German Ordinance on Occupational Diseases (Berufs-Krankheiten-Verordnung – BKV) [4] recognition of lung, laryngeal, or ovarian cancer as occupational diseases under BK 4104 is possible if it is:

- related to asbestos pneumoconiosis (asbestosis), or
- related to pleural disease due to asbestos dust, or
- if evidence is produced for a work-related exposure to a cumulative dose of asbestos fiber dust for at least 25 fiber years ( $25 \times 106 \text{ fibers/m}^3 \times \text{years}$ ).

At least one out of 3 bridge findings is needed for recognition. In agreement to these current law requirements, we investigated the value of histological findings and found that in some cases the histologic diagnosis of asbestosis was the only bridge finding because exposure did not total 25 fiber years, and radiological evaluation did not reveal any bridge findings.

According to the Helsinki Criteria [5,6], the Asbestosis Committee of the College of American Pathologists and Pulmonary Pathology Society [7] and the definition of the German Society of Pathology [8] the histological diagnosis

of asbestosis requires both the diagnosis of fibrosis and the detection of incorporated asbestos bodies. Therefore, the analysis of lung tissue for asbestos fiber levels and asbestos bodies is an appropriate supporting technique for the histological diagnosis of asbestosis. In agreement with these aforementioned guidelines, our histological diagnosis of asbestosis had been done from lung tissue.

With the help of the lung dust analysis the accumulated present-day asbestos fiber burden in the lungs is measured [6,7]. Chrysotile fibers, tremolite, amosite, and crocidolite might be found in the lungs of workers even 30 years or more after their last exposure [9–11]. Assessing the history of asbestos exposure might also provide data about the potentially inhaled fiber burden. However, this extrapolated approximation does not necessarily correlate to the actually accumulated fiber burden in the lungs [12–15]. Therefore the proposal for a “carefully obtained history of occupational exposure to asbestos” alone might as well lead to an underestimation of asbestos related diseases, as shown by our scientific data and other authors [2,16].

We therefore stand by our conclusion, that for compensation claims, all diagnostic tools should be utilized before an occupational disease under section 4104 is rejected.

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**Key words:**

**Asbestos bodies, Occupational disease, Lung fiber burden, Lung dust analysis, Lung cancer, Compensation**

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