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LETTER TO THE EDITOR (APRIL 4, 2018) 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,

The 2017 publication by Feder et al. [1] reiterates the fallacious and repeatedly disproven claim that the analysis of lung tissue for asbestos fiber levels and asbestos bodies is the appropriate technique for assessing past occupational exposure to asbestos. Contrary to an overwhelming body of scientific evidence [2–11] and the recommendations of the National Institute for Occupational Safety and Health [12] as well as the Collegium Ramazzini [13], these authors mistakenly insist that detection of a certain number of asbestos fibers or asbestos bodies in lung tissue is essential for confirming past occupational exposure to asbestos and that it is superior to a carefully obtained history of occupational exposure.

While it is true that finding asbestos fibers or asbestos bodies in lung tissue might provide evidence of asbestos exposure in cases where no exposure history or other proof of exposure is available, the detection of a certain number of asbestos fibers or asbestos bodies in lung tissue cannot be made a universal requirement for confirming exposure to asbestos because such a requirement ignores two well established biological facts.

First, a universal requirement for finding a certain number of asbestos fibers in lung tissue to confirm asbestos exposure fails to recognize that chrysotile asbestos, the predominant form of asbestos in the world markets today is well documented to have only a short residence time in lung tissue [2–8]. Therefore, measurement of chrysotile fibers in lung is an inherently insensitive analysis that carries high likelihood of underestimating or of failing altogether to diagnose past asbestos exposure even in the case of persons with a well-corroborated history of exposure [13].

Secondly, a universal requirement for finding a certain number of asbestos bodies in lung tissue ignores the well-established fact that chrysotile asbestos rarely forms asbestos bodies [9–11]. Therefore, insisting on the presence of certain numbers of asbestos bodies in lung tissue as an index of past exposure is to force reliance on an insensitive diagnostic technique and may lead to false negative diagnoses [13].

Unnecessary lung biopsies constitute a further potential negative consequence of an undue insistence on lung tissue analysis as a criterion for diagnosing past occupational exposure to asbestos. Lung biopsy is an invasive and poten-

tially hazardous procedure [14]. Since lung biopsy carries the risk of medical complications and is unnecessary for a diagnosis of asbestos exposure, the Collegium Ramazzini has stated that lung biopsy is "never ethically justified solely for medico-legal or compensation purposes" [12].

Feder et al.'s [1] insistence on applying the insensitive and outdated technology of lung tissue analysis to the diagnosis of asbestos-related disease combined with their unsound demand for the presence of a certain number of asbestos fibers and asbestos bodies in lung tissue could lead to missed diagnoses of asbestos exposure in the case of individuals and to very substantial undercounting of the true magnitude of asbestos disease in populations. The undercounting of disease that could result from strict application of this practice has been estimated to be as large as 80% [15–17]. If applied in the adjudication of compensation claims for asbestos disease, a strict requirement for lung tissue analysis could lead to judicial error and societal injustice on a very large scale [13,18,19].

The Collegium Ramazzini emphasizes that a carefully obtained history of occupational exposure to asbestos is the cornerstone of an accurate diagnosis of the diseases caused by asbestos [13]. An occupational history taken by a knowledgeable occupational physician and supplemented as necessary by an exposure assessment conducted by an experienced industrial hygienist is a far more sensitive and specific indicator of lung cancer risk from chrysotile asbestos than lung fiber burden analysis or asbestos body counting [20].

Key words:
Occupational exposure, Lung biopsy, Chrysotile asbestos, Asbestos bodies, Asbestos fiber levels, Undercounting of disease

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