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Mutti, L

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Authors	Mutti, L
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Title: A New Standard for Assessing Asbestos Exposure and Its Consequences?

Comment on the original article: *Gilham C, Rake C, Burdett G, et al. Pleural mesothelioma and lung cancer risks in relation to occupational history and asbestos lung burden. Occup Environ Med 2015; doi: 10.1136/oemed-2015-103074.*

Corresponding author:

L. Christine Oliver, MD, MPH, MS

Massachusetts General Hospital/Harvard Medical School
Occupational Health Initiatives, Inc.
1101 Beacon Street, Ste. 8 East
Brookline, MA 02446 USA
T: 617 232-1704 F: 617 232 3280
coliver@ohiinc.com

Co-authors:

Laura Welch, MD, FACP, FACOEM
Center for Construction Research and Training
Washington, DC USA
LWelch@cpwr.com

Arthur L. Frank, MD
Drexel University School of Public Health
Philadelphia, PA USA
alf26@drexel.edu

Richard A. Lemen, PhD, MSPH
Assistant Surgeon General (Ret.)
Rollins School of Public Health, Emory University
Atlanta, GA USA
richard@ralemen.org

Luciano Mutti, MD, PhD
University of Salford
Salford, Greater Manchester, UK
Luciano.mutti@hotmail.it

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Competing interest statement:

LCO, LW, AF, RL have acted as expert witnesses in asbestos litigation at the request of injured workers, their spouses, and others.

Comment

Bofetta and La Vecchia state in their Commentary that *“The paper by Gilham et al, published in Occupational and Environmental Medicine, is important for a number of methodological and substantive reasons”*^{1,2} In fact, there are methodological and substantive flaws in the paper that call into question study results and the authors’ conclusions.²

1. The authors rely on the occupational history as a key point of reference in asbestos exposure assessment. Lifetime occupational history was obtained by telephone interviews of patients with malignant mesothelioma and from general population and lung cancer controls. The implication is that these interviews were conducted directly with study subjects. However, the authors state that informed consent for postmortem sample analysis was obtained from 77% of mesothelioma patients *“and their next of kin”* and do not indicate if there were different rates of primary vs. next-of-kin sources of the occupational history between mesothelioma patients and lung cancer controls. Such information is key to evaluation of differential recall bias.
2. The authors defend their choice of lung cancer patients as controls on the basis of practicality and the assertion that *“Only a small proportion of all lung cancers are caused by asbestos”* Low lung sample retrieval rates are cited by Bofetta and La Vecchia as one source of bias.¹ A second lies in their choice of lung cancer controls based upon the assertion that the proportion of asbestos-related lung cancers is small. Estimates cited for lifetime risk of asbestos-related mesothelioma and lung cancer among British males born in 1945 are 0.86% and 0.47%, respectively. These estimates are counter to published estimates that the risk of asbestos-related lung cancer is at least twice that of malignant mesothelioma, leaving open the question of the authors’ definition of *“asbestos-related”* lung cancer.^{3,4} Was a concurrent diagnosis of asbestosis required? This choice of controls creates the potential for selection bias likely to have greater impact on outcome than Bofetta and La Vecchia indicate.¹
3. Bofetta and La Vecchia claim the study sets a *“new standard for epidemiological research on asbestos and mesothelioma.”* This *“standard”* ignores chrysotile asbestos, the predominant fiber type in use worldwide, and overlooks the impact of short (< 5 µm) fibers. Chrysotile causes all asbestos-related diseases, including malignant mesothelioma and lung cancer. This *“standard”* will imperil the diagnosis of asbestos-related disease, victim compensation, and public health measures aimed at primary and secondary prevention. The gold standard for asbestos-exposure assessment is the occupational history, not fiber burden.
4. Gilham et al respond to *“What this paper adds”* with the following: *“Such data will provide a rational basis for regulations on worker protection and asbestos monitoring and abatement”*² There already is a rational basis for regulating exposure to asbestos and monitoring exposed workers; such regulations are in place in most of the developed world.⁵ Health risks are known. The importance of primary prevention in the form of bans on production, importation, and use of asbestos is recognized and accepted. This paper contributes nothing to this solution.

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