Ann. Occup. Hyg., 2016, Vol. 60, No. 5, 649–650
doi:10.1093/annhyg/mew017
Advance Access publication 12 April 2016

BOHS
The Chartered Society for Worker Health Protection

LETTER TO THE EDITOR

Editorial Note. Letters to the Editor are peer reviewed to ensure that the arguments are reasonable and clearly expressed. However, letters may express a particular opinion rather than a balanced interpretation. Authors of papers commented on are invited to reply, but neither the journal nor peer reviewers should be assumed to support the arguments made.

Estimating Lifetime Asbestos Exposure in Patients With Idiopathic Pulmonary Fibrosis

Christopher M. Barber*, Ruth E. Wiggans, David Fishwick

Centre for Workplace Health, Health and Safety Laboratory, Harpur Hill, Buxton, Derbyshire SK17 9JN, UK
*Author to whom correspondence should be addressed. E-mail: chris.barber@hsl.gsi.gov.uk
Submitted 1 March 2016; revised 16 March 2016; revised version accepted 16 March 2016.

We read with interest the article by van Oyen *et al.* (2015) relating to the production of a job-exposure matrix (AsbJEM) that allows lifetime occupational asbestos exposure to be estimated. We recently published an article highlighting a potential link between rising idiopathic pulmonary fibrosis (IPF) mortality in the UK and historic national asbestos imports (Barber *et al.*, 2016). We identified a strong correlation between mesothelioma and IPF annual mortality between 1968 and 2012 in both males and females. Although this may be entirely coincidental, our article suggested a proportion of IPF deaths may in fact be due to unrecognized asbestosis. The two conditions can be clinically and radiologically indistinguishable and so rely heavily on the exposure history provided by the patient in order to differentiate them (Barber and Fishwick, 2012), raising the possibility of missed or inaccurate diagnosis. The difficulty of accurately estimating an individual patient's asbestos exposure was recognized some years ago in the Netherlands, leading to the development of a risk matrix based on job titles. This information was then used to produce stepwise decision trees for mesothelioma and asbestosis, now used to assess whether agreed thresholds of exposure are likely to have been reached by individual patients (Burdorf and Swuste, 1999). Our study concluded that a similar asbestos JEM should be developed for the UK, to facilitate more valid case–control studies of asbestos as a risk factor in IPF.

Our article referenced evidence from a case–control study of mesothelioma—published in 2009—that clearly demonstrated how common occupational asbestos exposure was historically among the working UK population (Rake *et al.*, 2009). This study found that among 1420 age-matched controls (median age 58–68 years and randomly selected from Health Authority registers), 65% of men and 23% of women had worked in occupations that were classified as medium or high risk for asbestos exposure. Many of the male controls (1112 men) had worked in

medium- or high-risk jobs for a significant duration of their employment—with 51, 42, and 28% having worked for at least 5, 10, and 20 years, respectively. Despite this, Rake *et al.* (2009) noted that many workers in medium-/high-risk exposure jobs were unable to provide a clear history of asbestos exposure. Possible explanations for this included the time elapsed since the exposure occurred, indirect exposure as a bystander, and handling materials that at the time were not identified as containing asbestos.

As well as the valuable data on lifetime mesothelioma risk in different UK occupations, the study by Rake *et al.* (2009) confirmed that a substantial number of men in the current UK general population (of the same age-group at risk of IPF) have had significant and prolonged asbestos exposure in previous jobs and that in some cases this may only be apparent by considering their job titles. As well as having clear research benefits, a UK asbestos JEM could also assist in the management of individual patients being assessed for anti-fibrotic drug treatments (currently only licensed in the UK for IPF) and in assessing eligibility for government benefits. Although we accept population JEMs cannot calculate exact lifetime doses for each individual patient (Kottek and Kilpatrick, 2016), we believe a UK model based on years worked in different job titles will offer a more standardized and objective estimate than current practice.

We wish to further highlight the possible link between asbestos exposure and IPF, and encourage van Oyen *et al.* (2015) to use their AsbJEM to carry out a case–control study of IPF in Australia. Hypothesizing a potential link between historic asbestos exposure and IPF has so far been controversial in the UK, and data from other countries would add greatly to the evidence base.

ACKNOWLEDGEMENTS

The authors have no conflicts of interest to declare. No financial support was received for this letter.

REFERENCES

Barber CM, Fishwick D. (2012) Importance of past occupational exposures in the rising incidence of idiopathic pulmonary fibrosis in the U.K. *Thorax*; 67: 264; author reply 264–5.

Barber CM, Wiggans RE, Young C et al. (2016) UK asbestos imports and mortality due to idiopathic pulmonary fibrosis. *Occup Med (Lond)*; 66: 106–11.

Burdorf A, Swuste P. (1999) An expert system for the evaluation of historical asbestos exposure as diagnostic criterion in asbestos-related diseases. *Ann Occup Hyg*; 43: 57–66.

Kottek M, Kilpatrick DJ. (2016) Estimating occupational exposure to asbestos in Australia. *Ann Occup Hyg*; 60: 531–2.

Rake C, Gilham C, Hatch J et al. (2009) Occupational, domestic and environmental mesothelioma risks in the British population: a case-control study. *Br J Cancer*; 100: 1175–83.

van Oyen SC, Peters S, Alfonso H et al. (2015) Development of a job-exposure matrix (AsbJEM) to estimate occupational exposure to asbestos in Australia. *Ann Occup Hyg*; 59: 737–48.