pattern of mesothelioma rates seen in many western countries, a legacy of past heavy industrial asbestos use, but rarely those that estimate mesothelioma risk within a biological framework.

Methods We analyse mesothelioma mortality in Great Britain using the two-stage clonal expansion (TSCE) model, a carcinogenesis model that assumes that the development of a malignant cell is the result of two critical and irreversible events. We use asbestos lung burden as the measure of dose that enters the dose-response component of the TSCE model. Within this framework, we relate the probability of mesothelioma to profiles of asbestos lung burden over time for subgroups of the male population derived from British annual asbestos import data and patterns of exposure from a recent population based study on mesothelioma risk in Great Britain. The role of asbestos as an initiator and promoter in carcinogenesis is investigated using Markov Chain Monte Carlo within a Bayesian framework.

Results The best-fitting model was found to be one in which both the initiation and promotion rates were dose-dependent.

Conclusions Mesothelioma mortality among males in Great Britain is predicted to peak in 2010 with an upper limit of 1854 deaths, however this peak has been found to be particularly sensitive to exposure assumptions. We discuss the impact of these assumptions on the peak and on longer-term projections.

194 MODELLING MESOTHELIOMA MORTALITY IN GREAT BRITAIN USING THE TWO-STAGE CLONAL EXPANSION MODEL

Emma Tan,[1] Nick Warren,[1] Andrew Darnton,[2] John Hodgson[2] *[1]Health & Safety Laboratory, Buxton, UK; [2]Health & Safety Executive, Bootle, UK*

10.1136/oemed-2011-100382.194

Objectives Asbestos is a carcinogen that is the cause of the majority of mesothelioma cases worldwide. Various models have been used to describe the increase and likely future