28 BENZENE EXPOSURE ASSESSMENT UNCERTAINTY AND ITS USE IN SENSITIVITY ANALYSES IN A POOLED STUDY OF LEUKAEMIA

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Objectives We examined the effect of exposure misclassification on measures of risk in a study of leukaemia and exposure to benzene.

Methods The exposure to benzene was estimated for 370 leukaemia cases and 1587 controls in a nested case-control study. The study drew cases and controls from three petroleum industry cohorts in the UK, Canada and Australia. The exposures were expressed as intensity of benzene exposure (ppm) for each job and the cumulative exposure (ppm-years) was estimated by multiplying the years at each job and summing over the career. The exposure estimate for each job was allocated a confidence 25ore of Low, Medium or High. This was used to group the subjects into those for whom all jobs with a High confidence exposure estimates, and those with a Moderate confidence exposure estimates (all jobs allocated High or Medium ie, where no jobs had a Low score). The ORs for leukaemia subtypes associated with cumulative exposure or intensity of exposure were estimated. Sensitivity analyses included only those subjects with Moderate or High confidence scores.

Results For more than one leukaemia subtypes the ORs were increased when subjects with low exposure certainty were removed and further increased when only those subjects with high certainty were included.

Conclusions This suggests that exposure misclassification has reduced the observed ORs in this study and highlights the need to design studies so that this can be evaluated.