

24 May 2005

Concawe review of petroleum industry workers studies benzene/leukaemia

Phase 2 Scoping Considerations

Motivation for pooling 3 studies (IOL, IP, HW)

1. Present new data to inform the regulatory debate (on the benzene OEL)
2. Increase power:
 - to examine leukaemia/diseases other than AML (at current/recent benzene exposure levels in the global petroleum industry)
 - to examine exposure-response function for AML, including identification of NOEL
 - o and if possible the most appropriate exposure metric
3. Operate efficiently:
 - Report results in time (i.e. < 2 years project)
 - Contain project costs

Options for pooling according to IOM report:

IOM suggestion (essential or optional)	How?	By whom?	Estimated cost
Increase the number of case-sets in the database (optional) ¹	Using the extended follow-up now available particularly for the IP and IOL studies ²	Original study PI's	500 k€
Validate the exposure k-factors, and rationalize these across studies (essential)	Using all existing measurement data on airborne benzene concentrations, re-work parts of the exposure assessment and assignment	Expert panel with knowledge of the industry and studies, i.e. hygienists originally involved [but this time guided by academic, e.g. IOM or IRAS?]	250 k€
Rationalise distinction between leukaemia cell types across studies (essential)	Re-visit all case diagnoses centrally ³	Small panel of haematology experts	150 k€
Analyse pooled data with modern statistical methods (optional)	Avoid arbitrary grouping strategies	Original PI's [supplemented with IOM?]	50 k€
Sensitivity analysis of	Using exposure estimate	Original PI's [supplemented	50 k€

¹ Considerations of study power should be brought to bear on this, but also time required for follow-up (3-4 years?)

² IOM suggests that because HW was finished only recently, very few additional cases have emerged – however, it may be more fair if all 3 studies were treated equally, irrespectively of size

³ Writer has no concept of the nature of this work – and is it feasible, considering institutional etc. constraints?

exposure-response modelling (optional)	variability information	with IOM?]	
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