Review of: "Improving the Integration of Epidemiological Data Into Human Health Risk Assessment: What Risk Assessors Told Us They Want"

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Potential competing interests: No potential competing interests to declare.

This review attempts to find out how epidemiologists can present information that will be useful for risk assessors. It surveys individuals with open-ended questions, including regulators, those who support their work, industry, academics, and consultants working in risk assessment, and identifies areas for improvement. About half of the 75 respondents were government regulators or related government officials. The consensus among respondents was that epidemiology data has good potential for use in risk assessment (mean value on a scale of 1-100 was 73), but the actual use in practice was rather low (mean value on a scale of 1-100 was 43). Many of the respondents indicated that they thought epidemiology is already moderately useful for risk assessment, but they mostly see substantial room for improvement. This review discusses the results of the survey.

Topics highlighted in the review include the need for useful exposure measurements and reporting; the need for stratifications of exposure levels that can inform dose-response assessment; some concern about outcome variables (although less than for exposure variables); a call for more use of biomarkers (frequently coupled with a call for more prospective cohort studies with biomonitoring included); and concerns about the handling of confounding in epidemiology studies. Many of the respondents asked for better communication of what was actually done in the epidemiology study, with a better description of the data analysis and justification for conclusions. Another theme was the call for an honest critique of the strengths and limitations of the study, including the uncertainty of the exposure metric, which many respondents believed was lacking in the epidemiology studies that they read.

Some of the more interesting comments, from this reviewer's perspective, had to do with the tendency of some epidemiology studies to draw conclusions that the data might not fully support, particularly with implying causal associations from observed associations.

The review offers recommendations related to collaborating with other disciplines, including exposure science and toxicology. Integration of epidemiologic findings with those of animal studies and controlled human exposure studies would also strengthen the impact of epidemiology studies in risk assessments. Further communication and collaboration with researchers in these other disciplines would improve their use by risk assessors.

Although this paper mainly reports on the results of this survey, it raises some very important points that may help start the conversation on how epidemiology studies might be improved to allow their use in risk assessment. These studies are very expensive and time consuming, and it may not take a lot more effort to make them more usable by the risk

assessment community.

Specific comments:

The survey instrument and anonymized results definitely need to be included in appendices available online. While the review lifts quotes, many of us would likely want to see the full range of responses.