Occupational and Environmental Medicine

Editorial

Statistical and epidemiological reviewing

From 1 October 1994, *Occupational and Environmental Medicine* is introducing a new system for statistical reviewing of submitted papers. As before, all papers will be initially sent to two general reviewers. The new statistical review process will apply only to those papers that pass this first hurdle—that is, when the initial review has indicated that the paper is potentially suitable for publication. Not all such papers will need to pass through the second stage, but it is expected to be normal practice for most. Introduction of the new system should not add more than two to three weeks to the total turnaround time for papers.

To facilitate statistical reviewing, a checklist has been drawn up and is reproduced below for the benefit of potential authors. This is very similar to checklists used by other medical journals. It reflects not merely a concern with narrow statistical issues such as data analytical methods, but broader issues that determine the validity of study findings, such as bias and confounding. This second stage might therefore be better described as concerned with the whole issue of valid inference from data, rather than with purely statistical matters, but the term “statistical review” has been used here for brevity.

Why introduce a new system? In the past, many reviewers for *Occupational and Environmental Medicine* (*British Journal of Industrial Medicine*) included comments on statistical and epidemiological methods as part of their general assessment. It is hoped that they will feel free to do so in the future. Nevertheless there is every reason to try to improve standards. Recently, in an article directed primarily at clinical research, Altman drew attention to the continued existence of methodological weaknesses in published papers and the consequences for patients if the wrong conclusions are drawn.¹ The consequences of poor quality aetiological research may be different but are nevertheless important. Publication in a learned journal is still regarded by many as assurance that the results are reliable. The introduction of the new review process in *Occupational and Environmental Medicine* will hopefully contribute towards making this a reality.

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1 Altman D. The scandal of poor medical research [editorial]. *BMJ*, 1994;308:283-4.

Checklist for epidemiological and statistical reviews

	Not applicable	Yes	No	Unclear
Design:				
D1 Is there a clear statement of the study objectives?				
D2 Is there a clear description of the study design?				
D3 Is the study design appropriate?				
D4 Is there a clear description of the study population(s)?				
D5 Is there a clear description of how the main variables were measured?				
D6 Is there an assessment of the adequacy of the sample size?				
Presentation and analysis:				
S1 Are the statistical procedures adequately described or referenced?				
S2 Are the statistical procedures appropriate?				
S3 Are response or tracing rates reported?				
S4 Are the data and the results adequately described?				
S5 Are confidence intervals and significance levels given where appropriate?				
Bias and confounding:				
B1 Are the response or tracing rates satisfactory?				
B2 Are you reasonably satisfied that the results are not explained by bias in subject selection or measurement?				
B3 As far as you can tell, have confounding variables been taken into account appropriately—either in the analysis or in the discussion?				
Recommendation (tick one yes response only):				
Acceptable				
Acceptable after minor revision—no need for further review				
Acceptable with revision—but need to see again				
Probably unsalvageable				