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editorial

Is this good research? Look for CONSORT and QUORUM

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The quality of clinical research publications is variable and poor quality may invalidate the findings of a study. Guidelines have now been published that should improve the reporting of clinical trials (CONSORT) and systematic reviews (QUORUM). These guidelines make it easier to judge research quality and should improve peer review: conclusions from clinical trials or systematic reviews using these guidelines are more likely to be reliable.

One of the key aspects of improving the care you offer to your patients is in basing your practice on the best available evidence. But with so many journal publications, how do you sift the good research from the bad?

In this case I will define good research as research that is of high enough quality to support the conclusions reached by the authors (whether a positive or a negative finding). This is crucial, since as the reader of a study, I need to have the confidence to accept the findings, at least for the patients in that study.

Research is very hard to do well and there are many reasons why an author's conclusions may not be valid. For instance, a finding of no difference between treatments may simply indicate that the study was too small to demonstrate a difference: if more patients had been recruited one therapy could have proved superior (a type-II error). If you are interested in clinical trial design I would recommend an excellent short book by Jadad[1] and a recent review article by Harrison.[2]

Investigations into the effect of research quality have also shown that, if incorrectly conducted, the size of the treatment effect may be overestimated by a substantial 30–40%.[3–5] Evidence about study quality in dentistry is lacking, but is slowly starting to appear, confirming many of these concerns.[6,7]

Of course, when I defined good research, what many of you will have realised is that I was really referring to the reporting of the research, since this is all we usually have to go on. The problem that I often encounter is that research articles lack many of the features that help me to evaluate their quality. The same difficulty may be faced by journal referees and editors.

As an aid to researchers and to improve the quality of reporting of research, two guidelines have been proposed that should make the task of assessing publications much easier. These are CONSORT and, more recently, QUORUM.

CONSORT (**Con**solidated **S**tandards for **R**eporting of **T**rials) was developed by a group of journal editors, clinical researchers and biostatisticians.[8] Since 1996 it has been adopted by more than 70 biomedical journals as a requirement for publication of randomised controlled trials. The *British Dental Journal* was the first dental journal to adopt these guidelines[9] and the *Journal of Orthodontics* has followed suit.[10]

CONSORT is a checklist of items that should be included in the publication of a randomised-controlled trial. The checklist items require clear and thorough descriptions of hypothesis, protocol, randomisation, blinding, follow-up and analysis; full details are available at www.consort-statement.org. As far as possible, items are evidence-based, ie, included if evidence supports their use.

With more complete reporting, the whole process of evaluating the quality of research should be easier. I believe that such transparency should also help referees and editors to be more objective in assessing the quality of new research, which should lead to better research in print. Early results show that this is starting to happen (D Moher *et al*, 2000, unpublished data (www.consort-statement.org)), but more comprehensive evaluation will appear once sufficient studies have been published after the adoption of the guidelines. As an added benefit, CONSORT provides clear guidance on constructing better trials, which should also improve future research quality.

QUORUM (**Qu**ality **O**f **R**eporting **O**f **M**eta-analyses) is a more recent guideline[11] and sets out to achieve the same improvement in the quality of reporting of systematic reviews as CONSORT is attempting to do for clinical trials. Confusingly, in North America systematic reviews are termed meta-analyses, whereas in Europe the term meta-analysis is used for the statistical

combination of studies in a systematic review.

A good systematic review reduces the bias that may enter a traditional, so-called narrative review, and therefore should give the reader more confidence in the conclusions.[12–14] Bias is minimised by having a clear prestated protocol (or systematic approach) describing:

- the question that will be reviewed
- how the reviewers will attempt to locate all relevant research
- how data will be included or excluded form the review
- how quality of the research will be examined
- how the data may be combined in a meta-analysis.

I believe that it is not unreasonable to expect the systematic approach to reduce the potential for reviewers to manipulate, unwittingly or otherwise, the results of the review. Similarly, by attempting to find all the research that has been conducted on the topic (both published and unpublished) as well as non-English language papers, reviews are less likely to be prone to either selective reporting or publication bias (which can and should be tested for).

As with any research, however, the quality of systematic reviews is likely to be variable depending on how rigorously the author has conducted the review. In order to make the process more transparent, the QUORUM guidelines, like CONSORT, set out a checklist that should ensure the inclusion of information needed to evaluate the quality of the systematic review.

Research into the impact on the quality of clinical trial and systematic review results is at a comparatively early stage. CONSORT and QUORUM should be thought of as dynamic and able to change in the light of good new evidence. There can be little doubt, however, that both provide us with the best currently-available benchmarks with which to assess the quality of reporting of research. So, if you are looking for indications of quality on which to base your evidence-based practice, look for CONSORT and QUORUM.

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