Time to up the research quality stakes

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In the last issue I touched on the quality of dental research and in this issue we look at two recent papers which have considered the quality of trials reported in the dental literature.[1,2] These are just the latest in a raft of over 30 papers (list available on request) since 1986 that have assessed quality of trials and reviews in a range of dental specialities.

Since the 1970s we have seen a rapid growth in the number of dental trials available on Medline, (figure 1) with trials now representing a third of all dental publications (34.4%) in 2009 compared with 5.8% in 1973. The number of reviews has also increased from 1.4% to 8.1%.*

While it is nice to see an increase in the number of trials being conducted we can see from the studies being produced[1,2] that there is much to be improved in the quality of reporting of these trials. It is now 15 years since the publication of the first CONSORT statement[3] which set out clear standards for the reporting of trials. CONSORT has been widely disseminated in journals and is readily accessible on both the CONSORT website (www.consort-statement.org) and the Equator-Network website (www.equator-network.org). Regular readers will know that we regularly highlight these sites and the Equator-Network hosts links to reporting guidelines for a wide range of study designs, not just randomised controlled trials. And yet the quality of reporting is still not great.

The question is why do people not follow these well-respected guidelines? And who is responsible for ensuring that they are followed? The answers are not straightforward as the responsibilities do not lie with any single individual or group. First the research study must be properly designed to ensure that the key elements are in place at the outset, and this responsibility lies with the researchers. They need to ensure that they use the correct study design to answer the question they are addressing and that the sample size is appropriate. This necessitates early discussions with methodologists and statisticians. Once approved and underway the study should be registered on a publicly accessible database.[4] On completion the study needs to be written up according to the relevant guideline and submitted for publication.

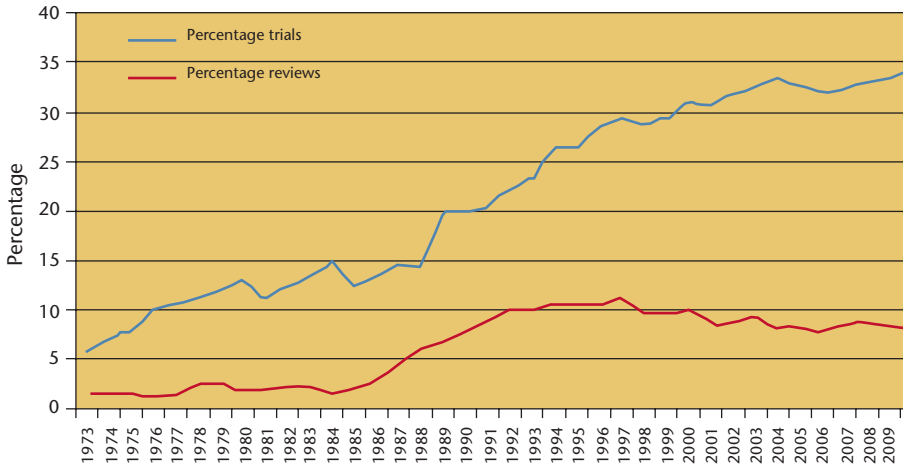

Fig. 1 Dental trials and reviews on Medline as a percentage of all dental studies

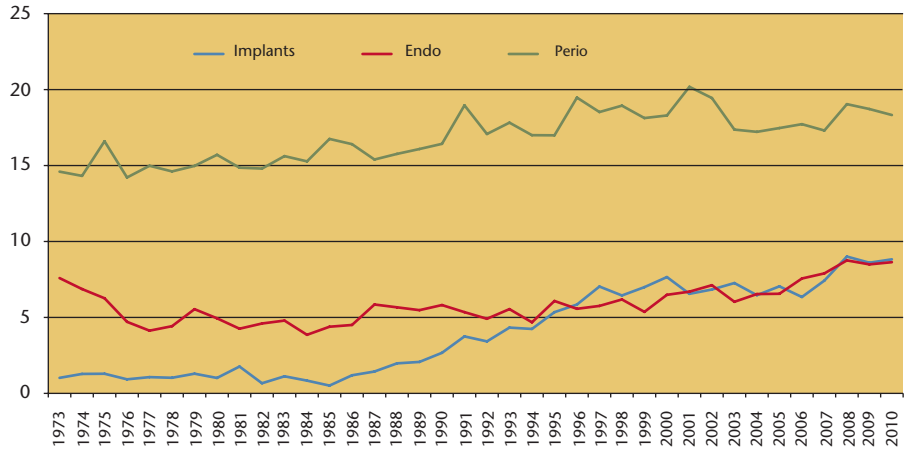

Fig. 2 Trials in three specific areas (implants, endodontics and periodontics) as percentage of dental trials

Publication is another challenge - the CONSORT website currently lists some 21 dental journals that formally endorse CONSORT, although a number of others do include it in their guidance to authors. Journal editors and peer reviewers should ensure that the relevant reporting guidelines adopted by the journal are followed and yet there may be challenges between these guidelines and the journals' normal requirements. For example including all the CONSORT requirements is likely to result in a much longer article than a journal would normally require. In addition the use of reporting guidelines also places an additional burden on a journal's peer reviewers who need to be familiar with them in order to ensure that the relevant elements have been included. Finally it is important that the readers themselves are familiar with the key requirements of these so that they can also assess the quality of the published article. So while the initial burden of responsibility for ensuring

the quality of any given study is with the researchers it is not theirs alone.

This issue of study quality is important. Undertaking trials is costly; it is therefore incumbent upon people to ensure that those that are conducted are of the highest quality. If we look at one growth area - dental implant research - we can see that the number of trials has increased over the past twenty years (figure 2). However, a recent Cochrane review of immediate placement implants[5] noted; 'preliminary conclusions are based on few underpowered trials often judged to be at high risk of bias', and similarly a review of soft tissue health around implants[6] found only low quality evidence available. In view of the numbers of implants being placed it is a sad indictment of dental research that so few high quality studies are available on which to guide our clinical practice.

And yet this is not just the case with dental implants, but a regular and consistent finding in dental systematic reviews. It is time to get to grips with the research quality agenda and improve what we do. There have been recent recommendations in restorative dentistry[5] but we need to get the individual specialities to agree common outcome measures so that we can synthesise results for different studies more readily, as well as improving both the conduct and reporting of the research we do.

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4. Richards D. Never mind the quality feel the width or less is more? *Evid Based Dent.* 2011; **12:** 2.
5. Esposito M, Grusovin MG, Polyzos IP, Felice P, Worthington HV. Interventions for replacing missing teeth: dental implants in fresh extraction sockets (immediate, immediate-delayed and delayed implants). Cochrane Database of Systematic Reviews 2010, Issue 9. Art. No.: CD005968
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* Please note that these searches are highly sensitive and are likely to include some non-dental trials and reviews. The review search used was a strategy developed by NHS Centre for Reviews and Dissemination at the University of York.