All surgeons attempt to give their patients the optimum level of treatment at their disposal. They search their knowledge in order to come to the best diagnostic and practical solution to the problems which they face. Their decisions are based upon the wisdom which they have gathered during their years of training and experience. They combine clinical expertise with an understanding of the current views on management based on the best available research and opinion. This has been the standard approach to care of the patient since the time of Hippocrates. In recent years there has arisen the concept of ‘evidence-based medicine’, in which emphasis has been placed on attempting to recognise and define the best scientific observation which might influence practice. The inference would appear to be that previously decisions had been made on an ad hoc basis and not based on the careful appraisal of available evidence. This is plainly untrue. However, it behoves us to continually examine the criteria which we use in making our decisions.

The use of meta-analysis of a large series of papers published on a particular subject has been used to attempt to produce an accurate and wide-based conclusion as to the management of a particular problem. The Cochrane Collaboration organisations have been particularly prominent in this activity and have produced a large series of useful surveys. Orthopaedic surgery has been the particular emphasis of the group of clinicians and epidemiologists based at McMaster University who have published numerous papers. A feature of their observations have been the few articles out of many assessed which they have felt appropriate in design and conclusion to warrant inclusion in their reviews. This is a matter of concern, since the implication is that much of the work which they have evaluated is of no help in assessing clinical problems, whereas to the reader it may appear to contain information of interest and of potential use.

How can we be conducted through this apparent minefield? In an attempt to clarify matters, systems of classification have been introduced which aim to guide the reader in perception of the value of the article. A number of choices are available. That used by our American colleagues is based on the concept of Levels of Evidence adapted from that proposed by the Oxford Centre for Evidence-based Medicine. In this, a level I study is defined as a “High-quality randomised, controlled trial with statistically-significant difference or no statistically-significant difference but narrow confidence intervals”. A level II study is “a randomised controlled trial of lesser quality, a prospective comparative study or a systematic review of level II studies”. Level III comprises case-controlled studies, retrospective comparative studies and systematic reviews of such articles. Level IV contains case reports and level V defines expert opinion.

It is immediately clear that this form of assessment presents serious difficulties in orthopaedic surgery and indeed in surgery in general. It is exceedingly difficult, if not impossible, to carry out a high quality randomised controlled trial of surgical operative method. Ethical considerations, difficulty in adhering to the protocol by individual surgeons, problems in the organisation of a trial with sufficient power and differences in individual skill and technique bedevil attempts at such exercises.

Consideration of the major advances made in orthopaedic surgery will indicate that few have been assessed by randomised controlled trials. Some papers which have been published describing these advances might have achieved level II status, but most would have been ranked in the third level. It may be suggested that it would have been preferable to judge these new methods and techniques by subjecting them to level I studies, but it is unlikely that any would have progressed if such approaches had been mandatory. This does not imply that a critical appraisal of such papers is inappropriate but indicates that enthusiasm for a particular popular dogma should be tempered by a more measured view.
The function of a journal is to provide the highest quality of information which is available to its readers. It should keep them informed as to current methods of evaluating the material which is published. However, it must assume that it has an interested and well-informed audience which is capable of a rational judgement of the papers which they read. Pre-judgement as to the worth of a paper is open to considerable bias and is therefore in itself a questionable premise. A journal is required to publish material which will provide the best evidence to allow its readers to fulfil the highest standards of practice and allow them to make their own judgement as to its value. Two further Editorials\(^1,2\) in this issue of the Journal discuss aspects of the current means of judging 'evidence', which indicate our concern that our readers are appraised about these views. We simply require the soundest evidence available to influence our surgical decisions. Whether the current attempts at grading papers are reasonable is a matter for individual decision. Perhaps we need to consider whether it is appropriate to assess the value of a parachute by a randomised controlled trial!\(^3\)

**References**