

On Reading Medical Journals

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Of all the activities that physicians perform, the one for which there seems the least amount of time is reading journals. It is, therefore, appropriate to consider how to read medical journals with greater effectiveness.

Several types of articles can be identified. Some are simply technical notes, or case reports that may raise interesting questions but are rarely able to "prove" them. Others are review articles or philosophical discussions that explore a range of studies or opinions in a given field. The emphasis here will be placed on what is commonly the most difficult type of paper for the family practitioner to evaluate, namely, the paper that attempts to document a cause-and-effect relationship using an experimental design, particularly when concerned with evaluation of an alleged new, or better treatment. There are two primary questions which must be asked about such reports: (1) did the study make full use of sound scientific methods?; and (2) are the reported conclusions applicable to "my patients"?

The answers to these questions involve consideration of many complex issues. The following, however, are caveats that can and should be considered by anyone interested in being a critical reader of medical literature.*

1. If a study compares treatments, have the criteria for comparison been carefully stated?
2. Is there a clear statement of criteria for entry into the study, and have such criteria been faithfully and uniformly applied to all potential participants?
3. Is there a clear statement of (a) what treatments would be administered, (b) how side effects would be handled, (c) what additional therapy would be allowed concurrently, and (d) how dropouts would be defined and handled?
4. Were checks made to insure that treatment protocols were unchanged throughout the study and were consistently applied to all patients?
5. Was there a control group and what were its characteristics? Were patients assigned to treatment groups randomly (or by some other means) to ensure

comparability of treatment results? Was a double-blind protocol needed and, if so, was it followed?

6. Were risk factors the same in treatment and control groups, and if differences existed were adjustments made in the analysis?

7. Is the sample size large enough to ensure that medically important differences will be detected if they exist?

8. Are statistically significant results clinically significant?

a. How does the regimen used compare to what is practicable in standard practice?

b. Are the criteria for improvement reasonable ones, in that they measure improvement in the sense of "health" of the individual?

c. Are the differences found large enough to warrant additional risks or discomfort of the new procedure?

d. Is it possible to define one subgroup that is helped, while others are not?

e. Has there been sufficient time for follow-up to insure that reported success will not revert to therapeutic failure?

Each paper does not stand in isolation. Different journals have different styles, and a clinically oriented paper that might be appropriate to the *Archives of Internal Medicine* might be shunned by the *American Journal of Public Health* and, vice versa, although both have rather high scientific standards. One needs to know, therefore, not only what is being presented but what relevant types of studies — clinical trials, simulation modeling, epidemiology, laboratory research — are being missed in a particular journal and where such papers might be found.

Furthermore, evaluation is not strictly a one-time process but, rather, occurs in several stages both before and after publication. After being approved, either with or without modifications, by the editorial board of a journal and being published, the paper undergoes further evaluation, via letters to the editor. These should be scrutinized as carefully as the paper itself, because they frequently focus more specifically on the individual issues discussed here and can assist greatly in determining the ultimate value of a paper to the family practitioner.

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*The list of issues has been developed in greater detail over a period of several years for medical students at the University of Vermont. Copies of this list are available upon request.

the balance you want
in a lower dose
oral contraceptive



0.5

mg norethindrone