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How Do You Surmise The Appropriateness of Commercial or Scientific Information?

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How do you assess the claims that dental companies or researchers make about their products when you are busy in your dental practice? It is plausible that clinicians are continuously exposed to claims from both commercial and scientific sources which place a product in the best possible light in terms of health promotion or disease prevention. It can also be argued that such claims should have been evaluated carefully and interpreted in the context of the clinician's practice prior to the usage of the innovation becoming a mainstay in clinical practice.

In this inaugural issue of the Journal of Dentistry and Oral Health, I would like to remind the readership and clinicians that they need to maintain a professional degree of doubt or perhaps better said; a healthy level of skepticism about everything that they see, hear and read [1]. This thought is based on the notion that nothing in this world is ever understood fully especially in scientific research.

The need for skepticism arises because much of the information that captures a clinician's attention is by intent designed to do just that, which at times may not represent an appropriate or balanced viewpoint. Occasionally even procedures which are used to help ensure that information is scientifically sound may falter. An example of this is the peer review process which should filter out poor methods, designs, calculations or conclusions but the articles still get published in journals.

Such failures may result when the performance of the new product or procedure is not compared to the performance of the currently accepted product or procedure (i.e. the "gold standard") and instead is compared to a simple visual analysis which is not the norm. For example a dental material was placed in a tooth and therefore it must be considered a successful procedure, implying that this outcome was in fact the outcome measure that needed to be measured.

Should clinicians be expected to identify such lapses in validity in research? The answer is of course a resounding and obvious "yes". Are they capable of doing this? Sure, but perhaps but it all depends on one's intent and willingness. In today's dental practice as information saturates the environment, and not all of it accurate, it becomes very difficult to weed out the poor information and accept the good information. A method of critically appraising the literature or information must be readily available for the clinician who did not receive training in dental school or residency program to appraise and critique information objectively. To make clinical decisions based on uncritical acceptance of new information is risky for both the clinician as well as the patient.

However, we are dental professionals and we are held responsible by our dental community and society for keeping up-to-date with the dental knowledge, understanding it and using the most current available information in the treatment of our patients. For those of us in academics, this skill is even more important to maintain and to emulate so our students see the applicability of this behavior when they are in clinical practice. So how do we decide which information to adopt and act on? Part of the answer is to be critical, to receive all new information with an unbiased attitude-a healthy level of skepticism.

At the most basic level, any clinician must possess some of the skills to appraise the basis of the clinically relevant information, be it a published study, information from a sales representative or journal advertisement, a continuing dental education presentation or even a tip from a colleague at the local study club. Critical appraisal is in fact an approach to which most dentists were not exposed to during their professional education, and has only become mainstream in the past decade or so.

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Of course a large component of critical appraisal is our professional judgment and common sense, and that is a skill that most professionals have. Applying common sense to the methods and results of a typical clinical study will help answer several questions about the validity and representativeness of that study (how it applies to populations outside that of the study). However, this pre-supposes that the reader understands that different study designs are required to yield specific answers to specific types of research questions.

While a randomized clinical trial (RCT) is the study design of choice to try to limit bias in a therapeutic trial--that is whether there is an alternative explanation for the results seen in the therapeutic study-- it also provides a layer of randomization of the subjects with the therapeutic procedure (or dosage) in order to compare the results with those subjects not receiving the new procedure or material (placebo). The randomization can also be a form of blinding for the researchers so they do not know which subjects are receiving the treatment or placebo, thus limiting as much as possible the level of bias. Table 1 demonstrates the types of study designs and the research questions which they can answer if the study is designed competently.

	Qualitative	Cross Sectional	Case Control	Cohort	RCT	Systematic Review
Diagnosis				*	**	***
Therapy				*	**	***
Prognosis				***		
Screening			*	*	**	***
Views/Beliefs/Perceptions	***					
Prevalence/Hypo. Gen.	***	***				

Table 1: The number of stars (asterix) means the more appropriate the study design for that study question.

The next question to address in a critical appraisal after accounting for bias is whether the results of a study are clinically significant. It is plausible that a "new" periodontal therapy can increase the attachment level or decrease the probing depth with results that are statistically significant however that differential outcome may be deemed to be clinically insignificant. So what is statistically significant may in fact be clinically insignificant.

Lastly when the clinician reads the research results, they have to consider the question of whether the results are applicable to their patients or not. Answering these questions is a large step toward deciding whether the information is worthy of acceptance and application in clinical practice and the clinician can reach this conclusion because they have used their common sense perhaps with some prior review of study methods and their intent.

Fortunately there are resources available these days which do some of the leg work for the busy clinician. One of the most consistent sources of controlled bias of clinically relevant information is the systematic review (SR) study design by definition. Instead of waiting for the information to appear across one's desk at the office, one can actively seek and select systematic reviews through various web-based resources much like one would to obtain an article.

The strict and explicit protocol for conducting a systematic review is designed to ensure that all relevant evidence relating to the clinical question is included in the review and that the quality of the individual clinical studies in the systematic review is at least evaluated and is considered in arriving at the review's conclusions thereby the conclusions of the review are based on an objective synthesis of the individual studies in the review.

An online search for systematic reviews will most likely lead you to at least two large databases of systematic reviews in dentistry; one is the Cochrane Oral Heath Group and the other is the American Dental Association's Center for Evidence Based-Dentistry where critical summaries of systematic reviews are posted. The critical summaries present an synopsis of the systematic review and brief commentaries on the review's methods, the strength of the reported evidence and the clinical implications. These critical summaries can be used both to answer clinical questions and to get background information on a clinical question that a new study purports to answer.

So having a healthy appetite for skepticism is an active process, and one that society expects professionals to do, and do well but clinicians bear the primary responsibility to evaluate new information critically, and to apply it appropriately.

References

1. Bader JD (2008) Keeping critical. JADA 139: 1160-1162.