Absence of evidence is not evidence of absence

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At a news briefing in 2002, the then US Secretary of State of Defense, Donald H. Rumsfeld remarked that "… there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But there are also unknown unknowns – the ones we don't know we don't know."

Evidence-based health care is the conscientious use of current best evidence in making decisions about the care of individual patients or the delivery of health services. Yet, whenever you may have raised questions about the lack of evidence for which a particular treatment is based, you may be at the receiving end of a variety of retaliatory answers. A frequent retort you may have encountered is "well, it works in my hands". I once witnessed a similar gambit used by a (much fêted by the dental industry) 'celebrity' endodontist when he attempted to humiliate a member of the audience, who had the audacity to challenge him about the evidence for the treatment approach he was expounding, with the curt response – "because I said so!"

Alternative treatment modalities do not rely on any coherent or established body of evidence, and are not subjected to rigorous assessment or require confirmed derived value. Another common argument used by proponents of alternative treatment modalities is that the absence of evidence is not evidence of absence. Whatever has not been proved false must be true, and vice versa. This seemingly plausible, logical and convincing argument is intended to turn the tables on doubters and critics in the hope of silencing or, at least, confuse them. It is ingenious, who is to say there may be yet-to-be discovered evidence somewhere out there after all?

In health care, some accepted forms of treatment may not strictly satisfy the evidence-based model. It may also be that there is some evidence but it is insufficient; the jury may be out. In addition, the difference between evidence on something is absent and a simple absence of evidence may, sometimes, be subtle. However, the principle that the absence of evidence is not evidence of absence only works when we know what evidence to look for. If we do not know what evidence to look for, it is not proof of absence.

This editorial is not meant to be a lesson in philosophy. The argument that the absence of evidence is not evidence of absence is in itself not the problem. Nevertheless, in the hands of advocates of untested treatment, it is in danger of being used, tactically and purely, as an excuse or to mislead. When faced with anything that lacks supportive evidence or if there is any ambiguity, it is prudent to be cautious. In defence of rational scientific thinking, take any unsupported claims with a pinch of salt; maintain a generous and healthy dose of scepticism. If the claims are extraordinary, you may even wish to apply the sceptic's standard associated with Carl Sagan, the noted cosmologist, astronomer and astrophysicist, that "extraordinary claims require extraordinary levels of evidence or proof".

An introductory article to evidence-based dentistry is included in this issue; I hope you will enjoy reading it.

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