



Ups and downs of evidence and practice guidelines

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In recent years, have you recommended mattress and pillow covers to parents of young patients with asthma or allergic rhinitis to reduce their exposure to dust mite allergens? If so, you were wrong!

Or have you recommended tympanostomy tubes for your patients with persistent otitis, with the hope of preventing hearing loss or developmental delay? That recommendation was wrong as well!

Or perhaps you have tried lowering glycemic levels in your patients with type 2 diabetes to below a glycated hemoglobin A_{1c} target threshold of 7.0% or tried lowering their blood pressure to below 120 mm Hg? Wrong again!

If we are to believe the findings in “A Decade of Reversal: An Analysis of 146 Contradicted Medical Practices,”¹ recently published in *Mayo Clinic Proceedings*, all of these practices are incorrect. Prasad et al analyzed all original articles published in 10 years in one of the biggest medical journals, if not the biggest high-impact journal in the world, ie, the *New England Journal of Medicine*. These articles were categorized into 1 of 4 designations: *replacement* was defined as a new practice surpassing an older standard of care; *back to the drawing board* was defined as a new practice failing to surpass an older standard; *reversal* was designated when a current medical practice was found to be inferior to a lesser or previous standard; and *reaffirmation* was defined as an existing medical practice being found to be superior to a lesser or previous standard.

The verdict? Of the 363 articles that tested an existing medical practice, 146 (40.2%) found the practice ineffective compared with a previous standard or its omission (*reversal*). Incredible!

And yet, it seems that Prasad et al are not the only ones to question established medical practice. In 2005, Ioannidis et al examined original research studies published in 3 important medical journals (*New England Journal of Medicine*, *JAMA*, and *Lancet*) between 1990 and 2003 that were cited more than 1000 times in the literature.² They observed that 16% of the studies claiming that an intervention was effective were contradicted by subsequent studies. In Australia, in 2012, more than 150 practices were identified as potentially ineffective or unsafe.³ In England, the National Institute for Health and Clinical Excellence identified more than 800 low-value practices over the past decade.⁴

These findings are stunning! It is akin to acknowledging that a large part of what we have practised over the past decade was wrong.

How is this possible? Of course, there are those who will say that medicine is an evolving science and that it is natural that what we believe today will be obsolete tomorrow. But to this degree? And at this pace? It is difficult to subscribe to this logic: How can we acknowledge and accept the fact that nearly half of the actions that we are taking today could be wrong? That kind of logic is paradoxical and Kafkaesque.

Surely, there must be another explanation. In my view, the error stems from our interpretation of evidence. Have you noticed how the guidelines that have become the backbone of our medical practice, as scientific and rigorous as they claim to be, are often laden with opinions and interpretations? Let's consider the most recent recommendations from the Canadian Diabetes Association,⁵ ranked among the most credible and widely recognized guidelines. The most recent edition, released in April 2013, contains more than 100 grade D, consensus recommendations. This means that these recommendations are based solely on expert opinions and not on scientifically rigorous data (absence of level I, II, or III). So, if 40% of medical practices are reversed within 10 years of appearing in the *New England Journal of Medicine*, imagine the reversal rate of practices based essentially on expert opinion! It's not hard to imagine that their reversal rate will be even higher.

With evidence that does not stand the test of time and practice guidelines rife with expert opinions, it's no wonder that family physicians no longer know what to believe!

Competing interests

None declared

References

1. Prasad V, Vandross A, Toomey C, Cheung M, Rho J, Quinn S, et al. A decade of reversal: an analysis of 146 contradicted medical practices. *Mayo Clin Proc* 2013;88(8):790-8. Epub 2013 Jul 18.
2. Ioannidis JP. Contradicted and initially stronger effects in highly cited clinical research. *JAMA* 2005;294(2):218-28.
3. Elshaug AG, Watt AM, Mundy L, Willis CD. Over 150 potentially low-value health care practices: an Australian study. *MJA* 2012;197(10):556-60.
4. Garner S, Littlejohns P. Disinvestment from low value clinical interventions: NICEly done? *BMJ* 2011;343:d4519.
5. Canadian Diabetes Association Clinical Practice Guidelines Expert Committee. Canadian Diabetes Association 2013 Clinical Practice Guidelines for the Prevention and Management of Diabetes in Canada. *Can J Diabetes* 2013;37(Suppl 1):S1-212.

Cet article se trouve aussi en français à la page 1144.