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Evidence-based medicine in the world of 'alternate facts'

The world hasn't yet really decided what the presidency of Donald Trump will leave as its legacy but whatever it is you can be certain it won't be the normal presidential legacy. Few observers, whatever their leaning, would argue that Trump's policies are without controversy and there is little in the American President's politics that we can find reflected in the views of the editorial staff here at 360. A quite astounding phenomenon has been the development of the term 'alternate facts'. A jaw-dropping approach which is at best misdirection and at worst flagrant lies.

This phenomenon has set me thinking about probity and specifically research ethics. To coin a new phrase, 'alternate facts papers' are not as rare as one might think. The best estimates of the number of retracted papers would suggest that they are on the increase. There were 2047 retracted articles in the PubMed index in 2012,¹ however, with a seemingly exponential growth there are now 4919 indexed in PubMed in 2017. These articles are increasing in frequency and clearly represent only the 'tip of the iceberg', with rises in the number of retractions for both error and fraud¹ discussed in one of the best articles on the topic.

So, there are some scientific 'alternate facts' out there as well. Does it really matter? If retractions happen, surely that will solve the problem? Not necessarily, is the short answer. The internet provides permanence even to retracted papers. The online monitor Retraction Watch has a "leaderboard" of the most cited retracted

papers. The leading paper (describing a protein apparently secreted by visceral fat that mimics the effects of insulin) has an amazing 1023 citations. The majority (n = 776) occurred after its retraction. While for some the temptation may have been too much or simply the result of innocent errors, there are many authors with multiple retracted papers. Now disgraced anaesthetist Yoshitaka Fujii has had 183 papers retracted, most concerning post-operative nausea and vomiting, with entirely faked data.²

While this clearly represents the minority of papers, it does underline the difficulty inherent in the internet's ever-present memory. One of the potentially best papers we have seen for many years concerning DVT prophylaxis and patients post-arthroscopy and following lower limb plasters has probably been read only by a minority of readers.³ Despite being a new and important study reported in *The Lancet*, it doesn't appear on the first ten pages of Google under the search term "thromboprophylaxis plaster cast", but many guidelines and opinions do, including the NICE guidance (CG92) recommendations which, in the absence of evidence, were based on expert opinion only. Even when using the PubMed search engine this study ranked twentieth in relevance to the same search.

Whilst this is perhaps a particularly good example as there is much previous research, much funded by drug companies and the high dollar healthcare industry is not above promoting themselves up search engines, just as much as they are prepared to buy votes (via the lobby

system) in the US congress, fund research with a deliberate design to shed positive light on their products or influence national policy.

The inclusiveness and algorithm-led nature of internet searching can, in some circumstances, result in significant inertia in the spread of ideas. In addition to this, it continues to propagate discredited papers and 'alternate facts' (I won't even attempt to delve into the 'Bowling Green Massacre' or 'What Happened in Sweden'!). It is important for those of us in clinical practice to be aware of this. The ubiquitous nature of the 'quick google search' has the potential to not only throw up valuable information but also misinformation. We may feel in medicine that we are beyond making such simple mistakes, but there is a real risk that much of what we read may not only be out of date, but it may be just plain wrong; it may even have been withdrawn. The quest for evidence-based practice is facilitated, and hampered, by the information age in equal measure.

REFERENCES

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