

Almost 400 medical practices found ineffective in analysis of 3,000 studies

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Scientists have identified nearly 400 established medical practices that have been found to be ineffective by clinical studies published across three top medical journals.

Writing in the open-access journal *eLife*, the team hope their findings will encourage the de-adoption of these practices, also known as medical reversals, ultimately making [patient care](#) more efficient and cost effective.

Medical reversals are practices that have been found to be no better than prior or lesser standards of care, through randomised controlled trials (RCTs: studies that aim to reduce certain types of bias when testing new treatments). But it can be difficult to identify these practices. For example, Cochrane Reviews provide high-quality evidence on medical practices, but only one practice is covered in each review and many have not been reviewed in this way. Additionally, the Choosing Wisely initiative in the US aims to maintain a list of low-value [medical practices](#), but it relies on medical organisations to report them.

"We wanted to build on these and other efforts to provide a larger and more comprehensive list for clinicians and researchers to guide practice as they care for patients more effectively and economically," says lead author Diana Herrera-Perez, Research Assistant at the Knight Cancer Institute at Oregon Health & Science University (OHSU), US.

To do this, Herrera-Perez and her team conducted a search of RCTs published over 15 years in three leading general medical journals: the *Journal of the American Medical Association*, the *Lancet* and the *New England Journal of Medicine*.

Their analysis revealed 396 medical reversals from 3,000 articles. Of these, most were conducted on people in high-income countries (92%), likely because the majority of randomised trials are performed in this setting. Meanwhile, 8% were done in low or middle-income countries, including China, India, Malaysia and Ethiopia.

Cardiovascular disease was the most commonly represented medical

category among the reversals (20%), followed by public health/preventive medicine (12%) and critical care (11%). In terms of the type of intervention, medication was the most common (33%), followed by a procedure (20%) and vitamins and/or supplements (13%).

"There are a number of lessons that we can take away from our set of results, including the importance of conducting RCTs for both novel and established practices," explains senior author Vinay Prasad, Associate Professor at the OHSU Knight Cancer Institute. "Once an ineffective practice is established, it may be difficult to convince practitioners to abandon its use. By aiming to test novel treatments rigorously before they become widespread, we can reduce the number of reversals in practice and prevent unnecessary harm to patients.

"We hope our broad results may serve as a starting point for researchers, policy makers and payers who wish to have a list of practices that likely offer no net benefit to use in future work."

Prasad adds that some limitations need to be taken into account with the results, including the fact that only three general medical journals were studied. This means the findings may not be broadly generalisable to all journals or fields. Additionally, other researchers may categorise results differently, depending on their expertise. To help overcome this issue, the team invited physicians from a range of backgrounds to review and comment on the practices identified as reversals.

"Taken together, we hope our findings will help push medical professionals to evaluate their own practices critically and demand high-quality research before adopting a new [practice](#) in future, especially for those that are more expensive and/or aggressive than the current standard of care," concludes co-lead author Alyson Haslam, Ph.D., also at the OHSU Knight Cancer Institute.

More information: Diana Herrera-Perez et al, A comprehensive review of randomized clinical trials in three medical journals reveals 396 medical reversals, *eLife* (2019). [DOI: 10.7554/eLife.45183](https://doi.org/10.7554/eLife.45183)

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