5. Establish a Health Research Ombudsman

Experience suggests that even with rules, compliance is poor. An ombudsman is required to police fulfilment of obligations including data sharing, trial reporting and the measures outlined above. The ombudsman will respond to concerns from patients and professionals and will have oversight of public funding of health research. The ombudsman will also enlist peer reviewers to conduct audits of ongoing research, akin to the role of Specialist Inspectors in the CQC. **Conclusions** The profound problems in health research are widely acknowledged. The underlying causes are dysfunctional incentives, opacity and misalignment of research with patient priorities. There is no prospect that these issues will be resolved if we cannot translate the principles in the EBM manifesto into a set of practical measures. The five actions highlighted are not a panacea but they are practical first steps in overturning the scandal of poor medical research.

3 A REVIEW OF THE MAGNITUDE OF FINANCIAL RELATIONSHIPS WITH INDUSTRY AND DISCLOSURE PRACTICES AMONG CLINICAL PRACTICE GUIDELINE AUTHORS

Cole Wayant, Matt Vassar. *Oklahoma State University Center for Health Sciences, Tulsa, USA*

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Objectives Financial conflicts of interest (FCOI) with the pharmaceutical industry are associated with a sizeable, unidirectional, reproducible effect in favor of 'positive' research findings, per a recent Cochrane systematic review. In the context of clinical practice guidelines (CPG) — consensus documents that singularly guide most aspects of patient care — FCOI may result in biased treatment recommendations. Here, to derive a summary effect of the the magnitude of financial relationships with industry among CPG authors, and the accuracy of relationship disclosure, we synthesize both published and unpublished investigations.

Method Our protocol is publicly available (<https://osf.io/MXF4B/>). Using a combination of a PubMed search and expert knowledge of available studies, we gathered all published investigations of CPG author financial relationships with industry. Included studies must have used the OpenPayments database to either: 1) quantify the magnitude of financial relationship or 2) assessed the accuracy of disclosure statements among CPG authors. Raw payments data were solicited from all previous studies and converted to money received per author per 1 year. We combined raw payment data to derive summary measures of central tendency (e.g., medians with interquartile ranges (IQR)) for all four categories of OpenPayments data: General (e.g., personal fees such as speaking or honoraria), Research (e.g., direct costs), Associated research (e.g., grants), and Ownership (e.g., stock). We use Stata 15.1 and the command metaprop to conduct a fixed-effect meta-analysis of the proportion of disclosure statements that were accurate across all eligible studies.

Results All data (including area of medicine) and figures are available via OSF (<https://osf.io/MXF4B/>). A total of 10 studies (4 published, 6 under journal review by our team) with raw payments data comprising 494 CPG authors were retrieved for our analysis of the magnitude of financial relationships. Across all 494 CPG authors, the median total money received

from industry per year was \$14,286 (IQR \$105,964). Authors who received money in each category received (median, IQR): General payments \$4,141 (IQR \$20,641); Research \$3,155 (IQR \$5,396); Associated Research \$66,541 (IQR \$253,552); Ownership \$7,199 (IQR \$121,417).

A total of 9 studies investigated the accuracy of CPG author disclosure using OpenPayments database. The pooled accuracy of disclosure was 18% (95%CI 16% - 20%). One included study represented 62% of the weight in the meta-analysis. In a sensitivity analysis removing this study, the pooled accuracy of disclosure was 30% (95%CI 27% - 34%). **Conclusions** The results of this novel synthesis demonstrate that authors of medical CPGs are heavily conflicted and are likely not representative of most physicians. To curb the effects of FCOI on CPGs, international policy collaborations are necessary to 1) track payments to non-US based physician-authors; 2) improve disclosure of existing FCOIs; 3) encourage divestiture and prevention of future FCOIs.

4 MORE SYSTEMATIC REVIEWS ARE BEING REGISTERED IN PROSPERO EACH YEAR, BUT RECORDS ARE SELDOM UP-TO-DATE

¹Tanja Rombey, ²Falk Hoffmann, ¹Dawid Pieper, ²Katharina Allers. ¹Institute for Research in Operative Medicine, Witten/Herdecke University, Cologne, Germany; ²Department of Health Services Research, Carl von Ossietzky University Oldenburg, Oldenburg, Germany

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Objectives Prospective registration of systematic reviews (SRs) is useful as it increases transparency and decreases risk of bias. It also aims to prevent unintended duplication of SRs and facilitates collaboration. Thus, prospective registration is widely recommended in current guidance on SRs. Furthermore, like publishing a SR protocol, registration may increase the methodological quality of the SR.

The international prospective register for SRs, PROSPERO, is the world's first open-access online facility to register SRs. Registration is free of charge and records can easily be updated by the authors. Then a new version of the PROSPERO record is published.

Our primary objective was to determine the proportion of SRs registered in PROSPERO and the influence of publication year, review focus and country on that proportion. Our secondary objectives were a) to compare the basic characteristics of registered and non-registered SRs and b) to assess the up-to-dateness of the PROSPERO records.

Method We searched PubMed for SRs published between 2011 (launch of PROSPERO) and November 2018. We included a random sample of n = 300 SRs that would be eligible for registration in PROSPERO. We excluded scoping reviews, umbrella reviews/overviews and SRs, for which it is mandatory to publish a protocol, e.g. Cochrane reviews.

We extracted data on the following items: Country, focus (therapeutic, epidemiologic, diagnostic, prognostic or other), number of authors, and date of submission, publication and last search. If the SR was registered in PROSPERO, we also extracted the number of versions, status, and date of first and last version.

All data were analysed descriptively. Our primary analysis was based on the whole sample, while our secondary analyses were based on a) the registered and non-registered SRs and b) the identified PROSPERO records. Results