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Long list of conflicts of interest in industry-funded drug trials are counterproductive and opaque for readers

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2 **Title:** Long list of conflicts of interest in industry-funded drug trials are counterproductive
3 and opaque for readers

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22

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3 atopic dermatitis, observational study

4

1 MANUSCRIPT

2 1. Introduction

3 Conflict of interest (COI) has been widely accepted as a mandatory item of reporting.[1] The
4 optimal method for declaring COI remains unclear and varies from brief statements to
5 extensive lists.[2,3] We hypothesise that exhaustive lists, encompassing all financial
6 relationships with drug companies spanning many years (whether related to the study drug or
7 not) are counterproductive and opaque. The objective was to determine whether the use of
8 lengthy lists of COIs creates difficulties for readers in identifying the most relevant COIs in
9 dermatological industry-funded randomised controlled trials (RCTs) of drug treatments.

10 2. Methods

11 A recruited panel of typical dermatology journal readers (UK dermatology clinicians and
12 researchers) completed an online cross-sectional survey about COIs in a purposive sample of
13 four RCTs published in leading journals. Each paper had a long list of COIs, covering more
14 than a third of a page, on the topic of a commercial drug for a single skin condition. The
15 primary outcome was the percentage of readers correctly identifying the company that
16 developed the drug with authors who had a direct conflict with that company for the four
17 papers included, assessed independently by three authors who acted as a reference standard.

18 3. Results

19 A total of 23 readers completed the survey (response rate 44%). Six (26%) were exclusively
20 clinicians and 17 (73.9%) were research active (**Table**). No readers correctly identified direct
21 COIs of authors to the experimental drugs (**Figure**). All 23 readers correctly identified the
22 companies producing these drugs. Median time per paper taken to try and identify the authors
23 with direct COI was 6 minutes [4-8]. Readers reported a median score of 3 [2-4] for
24 confidence in their COI conclusions, indicating moderate confidence (6-point Likert scale; 1:
25 no confidence to 6: complete confidence). Scores obtained by readers with an exclusive

1 clinical activity were lower than the scores obtained by researchers. Free comments
2 highlighted challenges in discerning relevant COIs.

3 **4. Discussion**

4 Identifying authors with relevant COIs from long lists of COIs is counterproductive.
5 According to our readers' comments and previous literature,[4] several modifiable factors
6 could have contributed to challenges in accurately identifying relevant COIs, such as dense
7 paragraphs, small font, initialled names rather than full names, information split across
8 different pages and declaration of COIs in an appendix. In some senses, such COIs have
9 become the exhaustive "small print" for terms and conditions that few people read on many
10 websites. There is a need for transparency to avoid analysis bias and facilitate interpretation
11 of COIs.[5] We suggest that a clear and simple statement should indicate which authors have
12 a direct financial conflict with the product. We advocate for more reader-friendly and clear
13 COI disclosures, which could be facilitated using an "ACE" framework denoting the Author(s)
14 who received financial support from Company X (...a subsidiary of Company Y) who
15 developed/manufactured the Experimental treatment drug [name of drug] in this study. Others
16 have suggested a similar approach.[4] The standard full ICMJE COI statement could remain
17 at the end of the article for those who need the detail.

18

1 **ABBREVIATIONS**

2 COI: Conflict of Interest

3 RCT: Randomised Controlled Trial

4 **ACKNOWLEDGEMENTS**

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6 comments on the manuscript, Dr Sonia Gran for her helpful comments on the protocol and
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18 **COMPETING INTERESTS**

19 The authors declare no competing interest.

20 **ETHICS APPROVAL**

21 Not applicable

22 **TRANSPARENCY DECLARATION**

23 The lead author affirms that this manuscript is an honest, accurate, and transparent account of
24 the study being reported; that no important aspects of the study have been omitted; and that

1 any discrepancies from the study as planned (and, if relevant, registered) have been
2 explained.

3 **DATA SHARING**

4 Data supporting the study findings will be available from the corresponding author on
5 reasonable request.

6 **REGISTRATION**

7 This prospective observational study was registered on the 22nd of December 2022 at the
8 Centre of Evidence Based Dermatology registration portal. The protocol can be accessed at
9 <https://www.nottingham.ac.uk/research/groups/cebd/documents/protocol-coi.pdf>.

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19

1 **TABLE.** General readers' characteristics

2

Characteristics	N = 23
Gender, <i>n</i> (%)	
Female	14 (60.9)
Male	9 (39.1)
Age (years)	34 [31-44.5]
Number of scientific articles read by month	5 [4.0-10.0]
Professional role, <i>n</i> (%)	
Clinician	6 (26.1)
Researcher	7 (30.4)
Both clinician and researcher	10 (43.5)
Work setting for clinicians, <i>n</i> (%)*	
Public practice (NHS)**	16 (100)
Private practice**	2 (12.5)
Number of years within dermatology specialty (1st year of residency)*	7 [3.0-15.25]

3 *Data are expressed as median [IQR] or number (%)*

4 **Not applicable for 7 readers with an exclusive research activity*

5 ***A reader can have multiple activities*

1 **FIGURE.** Outcomes stratified by paper and readers' characteristics
2 *Primary outcome (percentage of readers who correctly both identified the company that*
3 *developed the drug and whether any (and which) of the authors have a direct conflict with*
4 *that company for the 4 papers included) stratified by paper and readers' characteristics*
5 *(created with flourish.studio: <https://flourish.studio>).*

- 1 **Supplemental file**
- 2 **Appendix 1.** Methods
- 3 **Appendix 2.** Search strategy in Medline (equation research used in the GREAT database)
- 4 **Appendix 3.** Characteristics of included studies and extracted data