Do the updated ICMJE criteria make a difference?

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ICMJE ‘criteria’: 

C1 Conception or design or acquisition, analysis, or interpretation of data

C2 Drafting or revising it critically

C3 Final approval

C4 Agreement to be accountable for all aspects of the work (2013)
• Increasing number of authors on byline
• Honorary authors
• Conflict of interest
• …
<table>
<thead>
<tr>
<th>Study</th>
<th>% articles with honorary author</th>
</tr>
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<tbody>
<tr>
<td>Flanagin et al. 1998.</td>
<td>Annals 25%, JAMA 23%, NEJM 18%, 16%, 23%, 11%</td>
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<tr>
<td>Yank, Rennie. 1999.</td>
<td>Lancet 44%</td>
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<td>Hwang SS et al. 2003.</td>
<td>Radiology 33%</td>
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<tr>
<td>Marušić et al. 2004.</td>
<td>CMJ 60%</td>
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<tr>
<td>Bates et al. 2004.</td>
<td>JAMA 4%, BMJ 21%, Annals 60%</td>
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<tr>
<td>Wislar et al. 2011.</td>
<td>21% 6 journals</td>
</tr>
<tr>
<td>Dotson B et al. 2011.</td>
<td>Honorary authors appear towards the end of a longer byline</td>
</tr>
</tbody>
</table>
Does the introduction of the 4th criterion (C4) in 2013 make any difference?
• authors' self-reported contributions in 2091 published articles
• biomedical journals:
  • 9 general
  • 8 experimental

• publicly available disclosures of contributions
• published before/after the introduction of C4 in 2013
ISI-JCR (Institute of Scientific Information) – Journal Citation Report

**Medicine**

**General and internal medicine**

- **High IF (IF>10):**
  - Lancet,
  - JAMA,
  - BMJ,
  - Ann Intern Med,
  - PLoS Med

- **Low IF (IF<10):**
  - BMC Med,
  - BMJ Open,
  - Canadian Fam Phys,
  - Croat Med J

**Experimental and research medicine**

- **High IF (IF>5):**
  - Nature Med,
  - EMBO Mol Med,
  - Clinical Science

- **Low IF (IF<5):**
  - Stem Cell Res,
  - Orphanet J Rare Dis,
  - J Biomed Sci,
  - Trials,
Conflict of interest:

- **NO**: 16,752 (92%)
- **YES**: 955 (5.3%)
- **maybe**: 418 (2.3%)

Acknowledgments:

- **YES**: 1,421 (68%)
- More often in general med. journals

Articles

- **No. of authors**: 9 ± 7

Review time:

- **137 ± 84** days
- 144 before vs. 133 after 2013
- 141 in exp. vs. 129 in gen. med. j.
Gender/geographic distribution of authors

- **male**: 63%
- **female**: 36%
- **n/a**: 1%

**IF**
- **7**: male
- **4,6**: female

**Gender/geographic distribution**

- **West** (N. America, W Europe, Australia): male 5232, female 147
- **SE Europe**: male 405344, female 0
- **Middle East**: male 161, female 66
- **Asia**: male 630, female 10
- **South America**: male 166112, female 11
- **Africa**: male 193100, female 13
% of authors who fulfill ICMJE criteria before and after introduction of 4th criterion in 2013.

- Before 2013: 60%
- After 2013: 60%

The number of authors who do NOT fulfill authorship criteria is still very high!
% of articles fulfilling all ICMJE criteria

- C1+2+3:
  - <2013: [VALUE]
  - 2014: 3.3%
  - 2018: 9.6%

- C1+2+3+4:
  - <2013: 44%
  - 2014: 58%
CONCLUSIONS:

• The number of authors who do NOT fulfill authorship criteria is still very **HIGH**

• The acceptance of the latest ICMJE authorship criteria update is very **LOW** but showing an increasing trend

• The prevalence of authors fulfilling previously valid authorship criteria (C1+C2+C3) has **INCREASED** after the introduction of the 4th criterion in 2013.
may the 4th criterion be on your mind...

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Additional data

• The number of honorary authors (who did NOT fulfill ICMJE criteria but appear as authors) has not significantly changed:
  • (13%) before and (11%) after for C1;
  • (39%) before and (34%) after for C2.
Author number on the byline has increased from $8 \pm 5$ to $10 \pm 8$


Drenth JP. Proliferation of authors on research reports in medicine. Sci Eng Ethics. 1996;2:469-80.
Additional data

**Journal criteria:**
- IF > 1
- Follow ICMJE rules
- Web available
- Publicly disclosed author contributions

**Article criteria:**
- IF > 1
- Publicly disclosed author contributions
- Original research reports
- 2 or more authors

Unit for analysing is the article.