Evidence In Practice Webinar Series Lecture #6

No One's Perfect
How Flawed is Fatally Flawed?



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The University of Alberta respects the sovereignty, lands, histories, languages, knowledge systems, and cultures of First Nations, Métis and Inuit

Leading with Purpose.



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How Flawed is Fatally Flawed?

Beyond Major Issues

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We may never know!

Or



It depends!

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Fatal Flaws!

Surely.

- \bullet fabrication is $\underline{\text{making up results}}$ and recording or reporting them;
- falsification is manipulating research materials, equipment, or processes or changing or omitting data or results such that the research is not accurately represented in the research record

Possibly?

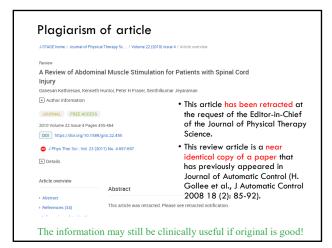
 plagiarism is the appropriation of another person's ideas, processes, results, or words without giving appropriate credit

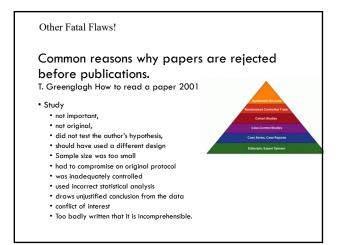




How can you detect those Fatal Flaws - Look for retractions - Journal - https://retractiondatabase.org/RetractionSearch.aspx? - Pubmed - The effect of cyclooxygenase-2 inhibition on acute and chronic donor-site pain after spinal-fusion surgery. - Cine Revules 15. Eman EF. Regiments K. Steinberg R.B. Blinder JL. Adesioys J. - Share Regiments Fram Med. 2056 an Feb.31 (1916-13. doi: 10.1016/j.rapm.2005.10.014. - Share PMID: 16118018 Retracted. Clinical Trial. - The effect of cyclooxygenase-2 inhibition on analgesia and spinal fusion. - Revulen SS. Eman EF. - Cine J Bone Joint Surg Am. 2005 Mars/10/1536-42. doi: 10.2106/JBJS.D.02283. - Share PMID: 15741613. Retracted. Clinical Trial. - But can still be cited later by authors having not updated their references







Fatal Flaws!

Possibly.

- Unethical!
- Conflict of interest
- Irrelevant for you
- REALLY Suboptimal research methodology (or unclear methodology)

 - Overestimate effects?
 Underestimate effects?
 Adequate effects estimates?
 Unclear effect estimates?



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Newly trained critical appraisers are very critical!



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FATAL? It depends on the quality appraisal

Cochrane

- The **overall risk of bias** for the result is the least favourable assessment across the domains of bias.
- Both the proposed domain-level and overall risk-of-bias judgements can be overridden by the review authors, with justification.



Most papers!!!!



 $\underline{https://training.cochrane.org/handbook/current/chapter-08}$

Quality of reporting is not the same as Quality of the study methods.



But both may limit your **confidence** in the reported results.

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Appraise

Relevance to your question

Ask if the the study is about the right

- Patients?
- Interventions?
- Therapists?
- Clinical setting?
- Outcomes?

Research quality

Evaluate the risk of bias

- 1. Randomization
- Deviations from the intended interventions (assignement / adhering)
- 3. Missing outcome data
- 4. Measurement of the outcome
- Selection of the reported results

You need relevance and quality but it is **not** all or nothing.

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SUMMARY

Beyond the major fatal flaws which luckily are fairly rarely published

(fabrication, falsification, conflict of interest, plagiarism?)

Fatal flaws depend on your appraisal and your needs for specific biased or irrelevant results

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