Author's response to reviews

Title: How Confidence Intervals become Confusion Intervals

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Author's response to reviews: see over
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Dear BMC Medical Research Methodology Editorial Board,

We are submitting our second revision of the paper “How Confidence Intervals become Confusion Intervals” to the BMC Medical Research Methodology. We have responded to the editors 2 comments. The response to the reviewers is detailed below.

We certify that all authors made significant contribution to the design, writing and editing. G. Michael Allan is the corresponding author (contact information above). We also certify that the authors have no conflict of interest in this submission and that we have not published or submitted any related papers from the same study.

We look forward to hearing back from you.

Best Regards,

G. Michael Allan MD,
James McCormack Pharm D,
Ben Vandermeer MSc
1. The article now includes an introduction and a background which is strange. The authors should make one introduction or background of these two sections.

   We have deleted the sub-title background. We have also moved the summary of the three examples to the end of the Introduction, helping eliminate a sentence.

2. The authors did not really include a historical perspective in the article as suggested by one of the reviewers. They included a reference to the reference list (nr 14) but this reference does not appear in the text."

   We have included a full paragraph detailing some of the history of statistical significance testing and confidence interval use. The below paragraph is in the discussion.

   We are not the first authors to write about the misinterpretation of confidence intervals and statistical significance. About 60 years ago, RA Fischer introduced the p-value for hypothesis and significance testing.\textsuperscript{14} Although 0.05 was suggested as a reasonable indicator for significance, he did assert the interpretation was open.\textsuperscript{14} Over 30 years ago, a number of articles were published encouraging medical researchers to report their results with confidence intervals.\textsuperscript{15-18} Confidence intervals provide an estimation reflecting the potential range of effect rather than simply stating if results are statistically significant or not.\textsuperscript{15-17} Unfortunately, this goal fell short as confidence intervals are frequently used to define whether a result is or is not statistically significant. In the 60 plus year history, articles on application of statistical reporting continue to encourage authors to present their findings,\textsuperscript{17,19,20} allow readers to interpret results\textsuperscript{14,17,19,20} and not use confidence intervals strictly for reporting statistical significance.\textsuperscript{17,20}