Reproducibility

Reproducibility is an important element of clinical research. It is necessary that others be able to reproduce experiments to test the results.

The Open Science movement aims at ensuring accessibility, reproducibility, and transparency of research.

Clinical researchers should describe the interventions used, the statistical tests used, as well as the results obtained so that other researchers can examine their results for methodological rigor and allow reproducibility.

Questions to be answered by the reviewers are:

1) did the authors describe the statistical software used

2) did the authors explain what statistical models were used

3) did the authors provide sufficient numerical information for someone to check the statistics that were calculated

4) are patients analyzed as randomized (inten-to-treat) or according to the treatment (as treated)

5) could presentation of the results be improved and do they answer the question

6) how large is the treatment effect

7) how precise is the estimate of the treatment effect

8) is the baseline information table described

9) do the figures and tables have important information and describe the data accurately

10) are they consistent, e.g., are bars in charts the same width, are the scales on the axes logical?

Two important and rapidly developing scientific movements—data reproducibility and machine learning—are central to a recent Neuron paper by Chung et al [1].

1)
Chung JE, Magland JF, Barnett AH, Tolosa VM, Tooker AC, Lee KY, Shah KG, Felix SH, Frank LM, Greengard LF. A Fully Automated Approach to Spike Sorting. Neuron. 2017 Sep 13;95(6):1381-1394.e6. doi: 10.1016/j.neuron.2017.08.030. PubMed PMID: 28910621; PubMed Central PMCID: PMC5743236.