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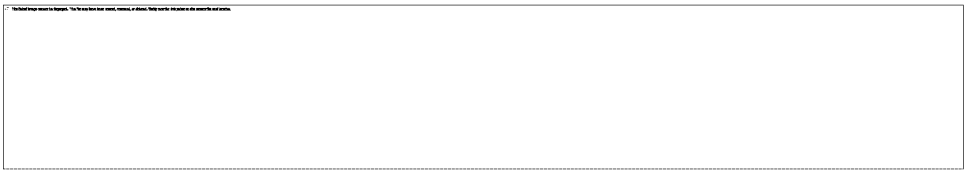

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News, Ideas and Opinions (5)
Topic Refinement, Stakeholder Engagement (2)
Literature Search and Selection (4)
Risk of Bias, Threats to Validity, etc. (3)
Writing, data presentation and peer review (4)

News, Ideas and Opinions (5)

Huang GD, Altemose J, O'Leary TJ. ***Public access to clinical trials: Lessons from an organizational implementation of policy***. Contemp.Clin.Trials 2017 Apr 13
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28414147
DOI: http://dx.doi.org/10.1016/j.cct.2017.04.002

Kim D. ***Transparency Policies of the European Medicines Agency: has the Paradigm Shifted?*** Med.Law.Rev. 2017 Feb 23

This article reflects on the state of play as regards access to non-summary clinical trial data in the European Union (EU). In particular, it examines the scope of access under the recent transparency policies of the European Medicines Agency (EMA) that attempt to break away from the presumptively confidential treatment of clinical trial data. In light of the emerging case law of the Court of Justice of the European Union on clinical trial data disclosure, it remains highly uncertain what data, and under what conditions, can be lawfully released by the EMA. Under the applicable regulations, the scope of the accessible data depends on the interpretation of commercially confidential information-the notion derived from the exception to the fundamental right of access to documents. Accordingly, the analysis focuses on the application of this exception, taking into account the specifics of clinical data, the context in which disclosure occurs, and the interests that are at stake. The main complexity is found in defining the scope of the relevant and legitimate interests to be balanced when applying the exception. Overall, it is argued that the current regulatory framework does not provide a sufficient legal basis to support the objectives pursued by the EMA's policies.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28334772
DOI: http://dx.doi.org/10.1093/medlaw/fwx002

Knottnerus JA, Tugwell P. ***Methodology of the 'craft' of scientific advice for policy and practice.*** J.Clin.Epidemiol. 2017 Feb;82:1-3
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28231887
DOI: http://dx.doi.org/10.1016/j.jclinepi.2017.01.005

Park RW. ***Sharing Clinical Big Data While Protecting Confidentiality and Security: Observational Health Data Sciences and Informatics***. Healthc.Inform.Res. 2017 Jan;23(1):1-3
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28261525
Free Full Text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5334126/pdf/hir-23-1.pdf
DOI: http://dx.doi.org/10.4258/hir.2017.23.1.1

Rumbold JM, Pierscionek B. ***The Effect of the General Data Protection Regulation on Medical Research.*** J.Med.Internet Res. 2017 Feb 24;19(2):e47

BACKGROUND: The enactment of the General Data Protection Regulation (GDPR) will impact on European data science. Particular concerns relating to consent requirements that would severely restrict medical data research have been raised. OBJECTIVE: Our objective is to explain the changes in data protection laws that apply to medical research and to discuss their potential impact. METHODS: Analysis of ethicolegal requirements imposed by the GDPR. RESULTS: The GDPR makes the classification of pseudonymised data as personal data clearer, although it has not been entirely resolved. Biomedical research on personal data where consent has not been obtained must be of substantial public interest. CONCLUSIONS: The GDPR introduces protections for data subjects that aim for consistency across the EU. The proposed changes will make little impact on biomedical data research.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28235748
Free Full Text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5346164/
DOI: http://dx.doi.org/10.2196/jmir.7108

Topic Refinement, Stakeholder Engagement (2)

Bastemeijer CM, Voogt L, van Ewijk JP, Hazelzet JA. ***What do patient values and preferences mean? A taxonomy based on a systematic review of qualitative papers***. Patient Educ.Couns. 2017

May;100(5):871-881

OBJECTIVE: In order to deliver good healthcare quality, it should explicitly be taken into account what patients value in healthcare. This study reviews qualitative studies in which patients express what they value. Based on this body of literature a preliminary taxonomy is designed. METHODS: A systematic review of qualitative papers on what patients' value. RESULTS: 22 studies out of a total of 3259 met the inclusion criteria. After critical appraisal, data extraction was carried out by two researchers independently and revealed values related to 1) the individual patient; 2) the expected behavior of professionals and 3) the interaction between patients and professionals. Seven key elements were recognized on the bases of content analysis; 1) uniqueness, 2) autonomy, 3) compassion, 4) professionalism, 5) responsiveness, 6) partnership and 7) empowerment. CONCLUSION: This study gives a rich insight into what patients value in various contexts and provides a promising taxonomy in line with patient centered based theories. The taxonomy needs further empirical research for a deeper insight and clarifaction in its elements. PRACTICE IMPLICATIONS: This review and preliminary taxonomy contribute to the conceptualization of patient values as a bases for guidelines, policy and daily practice.

PMID: http://www.ncbi.nlm.nih.gov/pubmed/28043713
DOI: http://dx.doi.org/10.1016/j.pec.2016.12.019

Khodyakov D, Grant S, Meeker D, Booth M, Pacheco-Santivanez N, Kim KK. ***Comparative analysis of stakeholder experiences with an online approach to prioritizing patient-centered research topics.*** J.Am.Med.Inform.Assoc. 2017 May 1;24(3):537-543

Objective: Little evidence exists about effective and scalable methods for meaningful stakeholder engagement in research. We explored patient/caregiver experiences with a high-tech online engagement approach for patient-centered research prioritization, compared their experiences with those of professional stakeholders, and identified factors associated with favorable participant experiences. Methods: We conducted 8 online modified-Delphi (OMD) panels. Panelists participated in 2 rating rounds with a statistical feedback/online discussion round in between. Panels focused on weight management/obesity, heart failure, and Kawasaki disease. We recruited a convenience sample of adults with any of the 3 conditions (or parents/guardians of Kawasaki disease patients), clinicians, and researchers. Measures included self-reported willingness to use OMD again, the panelists' study participation and online discussion experiences, the system's perceived ease of use, and active engagement metrics. Results: Out of 349 panelists, 292 (84%) completed the study. Of those, 46% were patients, 36% were clinicians, and 19% were researchers. In multivariate models, patients were not significantly more actively engaged (Odds ratio (OR) = 1.69, 95% confidence interval (CI), 0.94-3.05) but had more favorable study participation (beta = 0.49; P </= .05) and online discussion (beta = 0.18; P </= .05) experiences and were more willing to use OMD again (beta = 0.36; P </= .05), compared to professional stakeholders. Positive perceptions of the OMD system's ease of use (beta = 0.16; P </= .05) and favorable study participation (beta = 0.26; P </= .05) and online discussion (beta = 0.57; P </= .05) experiences were also associated with increased willingness to use OMD in the future. Active engagement was not associated with online experience indices or willingness to use OMD again. Conclusion: Online approaches to engaging large numbers of stakeholders are a promising and efficient adjunct to in-person meetings.

PMID: http://www.ncbi.nlm.nih.gov/pubmed/28011596
DOI: http://dx.doi.org/10.1093/jamia/ocw157

Literature Search and Selection (4)

Consoli S, Stilianakis NI. ***A quartet method based on variable neighborhood search for biomedical literature extraction and clustering.*** International Transactions in Operational Research 2017 May;24(3):537-558

Medline/PubMed is the largest reference database collecting, organizing, and analyzing biomedical literature. We propose an automated methodology that is capable of searching relevant references for systematic reviews and meta-analysis from the Medline/PubMed database, and then to visualize the retrieved bibliography through an intuitive method based on a graph layout. In particular, document

relationships are represented via the quartet method of hierarchical clustering. As this novel approach is based on an NP-hard combinatorial problem, a reduced variable neighborhood search is used for producing the graph of document clusters as output from the input distance matrix whereby the number of clusters is not known in advance. The distance matrix is derived from the link-ranking XML data returned by PubMed with the search results. It is demonstrated how the method allows to retrieve biomedical related bibliography, to find the structure of the literature collection examined, and to detect linked works within thematic areas of interest. With this methodology, scientists are assisted in the analysis of complex citations networks from the biomedical literature.
DOI: https://dx.doi.org/10.1111/itor.12240

Hartling L, Featherstone R, Nuspl M, Shave K, Dryden DM, Vandermeer B. ***Grey literature in systematic reviews: a cross-sectional study of the contribution of non-English reports, unpublished studies and dissertations to the results of meta-analyses in child-relevant reviews.*** BMC Med.Res.Methodol. 2017 Apr 19;17(1):64

BACKGROUND: Systematic reviews (SRs) are an important source of information about healthcare interventions. A key component of a well-conducted SR is a comprehensive literature search. There is limited evidence on the contribution of non-English reports, unpublished studies, and dissertations and their impact on results of meta-analyses. METHODS: Our sample included SRs from three Cochrane Review Groups: Acute Respiratory Infections (ARI), Infectious Diseases (ID), Developmental Psychosocial and Learning Problems (DPLP) (n = 129). Outcomes included: 1) proportion of reviews that searched for and included each study type; 2) proportion of relevant studies represented by each study type; and 3) impact on results and conclusions of the primary meta-analysis for each study type. RESULTS: Most SRs searched for non-English studies; however, these were included in only 12% of reviews and represented less than 5% of included studies. There was a change in results in only four reviews (total sample = 129); in two cases the change did not have an impact on the statistical or clinical significance of results. Most SRs searched for unpublished studies but the majority did not include these (only 6%) and they represented 2% of included studies. In most cases the impact of including unpublished studies was small; a substantial impact was observed in one case that relied solely on unpublished data. Few reviews in ARI (9%) and ID (3%) searched for dissertations compared to 65% in DPLP. Overall, dissertations were included in only nine SRs and represented less than 2% of included studies. In the majority of cases the change in results was negligible or small; in the case where a large change was noted, the estimate was more conservative without dissertations. CONCLUSIONS: The majority of SRs searched for non-English and unpublished studies; however, these represented a small proportion of included studies and rarely impacted the results and conclusions of the review. Inclusion of these study types may have an impact in situations where there are few relevant studies, or where there are questionable vested interests in the published literature. We found substantial variation in whether SRs searched for dissertations; in most reviews that included dissertations, these had little impact on results.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28420349
Free Full Text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5395863/pdf/12874_2017_Article_347.pdf
DOI: https://doi.org/10.1186/s12874-017-0347-z

Kugley S, Wade A, Thomas J, Mahood Q, Jørgensen AMK, Hammerstrøm K, et al. ***Searching for studies: a guide to information retrieval for Campbell systematic reviews***. Version 1.1. 2017 February:1-75

[Introduction] This guide is derived from the information in chapter 6 of The Cochrane Handbook (1, 2). Carol Lefebvre, Eric Manheimer and Julie Glanville kindly gave permission to the original Campbell Collaboration (Campbell) Information Retrieval Guide authors to use the chapter and chapter updates as the basis for this guide. In 2015 the Campbell Information Retrieval Methods Group (IRMG) revised this guide to reflect current Campbell Collaboration areas of practice and recommendations in the Methodological Expectations of Campbell Collaboration Intervention Reviews (MEC2IR), capture evolving practice and strategies for searching, and update links and descriptions of individual bibliographic and other resources.
This guide presents key considerations on the information retrieval process and provides examples of

strategies and resources for review authors and Trial Search coordinators (TSC) to reference in the planning and conduct of Campbell Systematic Reviews. The guide provides an overview of information retrieval principles (Ch.2); covers sources of literature including specific subject databases and bibliographic indexes (Ch. 3); describes steps for planning and executing searches (Ch.4 and 5); reviews tools for managing retrievals (Ch. 6); introduces the role of text mining (Ch. 7); and outlines key elements of the search process and search strategies for documentation (Ch.8). The Guide Appendices include subject specific databases and other sources of literature (Appendix I), grey literature sources (Appendix II), a search strategy template (Appendix III), a checklist for information retrieval activity (Appendix IV), and the literature search-specific items from the MEC2IR document (Appendix V) and list of abbreviations used in the guide (Appendix VI).
This guide provides high-level, overview information on information retrieval principles and is not a substitute for the Help sections of individual databases. Individuals who wish to search particular sources should familiarize themselves with the resource before beginning a search.
KEY POINTS • Outline the information retrieval strategy and methods in the review protocol. • Identify the key sources of information and develop search strategies in collaboration with the Campbell Collaboration Coordinating Group (CG) Trials Search Co-ordinator (TSC) and/or a librarian. • Use a wide variety of search terms for each concept, combining natural language "keywords" and database-specific subject headings. • Consider search filters and limits to focus retrieval. • Use alternate strategies (e.g., internet searches, manual searches, branching, etc.) to supplement the database searches. • Manage retrieved references using bibliographic software. • Consider text mining tools and functions to filter search results. • Document all searches to ensure reproducibility; copy strategies directly from the databases, record the date of the search, the database supplier, and retrieval numbers.
DOI: https://dx.doi.org/10.4073/cmg.2016.1

Nevitt SJ, Marson AG, Davie B, Reynolds S, Williams L, Smith CT. ***Exploring changes over time and characteristics associated with data retrieval across individual participant data meta-analyses: systematic review.*** BMJ 2017 Apr 5;357:j1390

Objective To investigate whether the success rate of retrieving individual participant data (IPD) for use in IPD meta-analyses has increased over time, and to explore the characteristics associated with IPD retrieval.Design Systematic review of published IPD meta-analyses, supplemented by a reflection of the Cochrane Epilepsy Group's 20 years' experience of requesting IPD.Data sources Medline, CENTRAL, Scopus, Web of Science, CINAHL Plus, and PsycINFO.Eligibility criteria for study selection IPD meta-analyses of studies of all designs and all clinical areas published in English.Results 760 IPD meta-analyses which identified studies by systematic methods that had been published between 1987 and 2015 were included. Only 188 (25%) of these IPD meta-analyses retrieved 100% of the eligible IPD for analysis, with 324 (43%) of these IPD meta-analyses retrieving 80% or more of relevant IPD. There is insufficient evidence to suggest that IPD retrieval rates have improved over time. IPD meta-analyses that included only randomised trials, had an authorship policy, included fewer eligible participants, and were conducted outside of the Cochrane Database of Systematic Reviews were associated with a high or complete IPD retrieval rate. There was no association between the source of funding of the IPD meta-analyses and IPD retrieval rate. The IPD retrieval rate of the Cochrane Epilepsy Group has declined from 83% (up to 2005) to 65% (between 2012 and 2015) and the reported reasons for lack of data availability have changed in recent years.Conclusions IPD meta-analyses are considered to be the "gold standard" for the synthesis of data from clinical research studies; however, only 25% of published IPD meta-analyses have had access to all IPD.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28381561
Free Full Text: http://www.bmj.com/content/357/bmj.j1390.long
DOI: http://dx.doi.org/10.1136/bmj.j1390

Risk of Bias, Threats to Validity, etc. (3)

Brincks A, Montag S, Howe GW, Huang S, Siddique J, Ahn S, et al. ***Addressing Methodologic Challenges and Minimizing Threats to Validity in Synthesizing Findings from Individual-Level Data***

Across Longitudinal Randomized Trials. Prev.Sci. 2017 Apr 22

Integrative Data Analysis (IDA) encompasses a collection of methods for data synthesis that pools participant-level data across multiple studies. Compared with single-study analyses, IDA provides larger sample sizes, better representation of participant characteristics, and often increased statistical power. Many of the methods currently available for IDA have focused on examining developmental changes using longitudinal observational studies employing different measures across time and study. However, IDA can also be useful in synthesizing across multiple randomized clinical trials to improve our understanding of the comprehensive effectiveness of interventions, as well as mediators and moderators of those effects. The pooling of data from randomized clinical trials presents a number of methodological challenges, and we discuss ways to examine potential threats to internal and external validity. Using as an illustration a synthesis of 19 randomized clinical trials on the prevention of adolescent depression, we articulate IDA methods that can be used to minimize threats to internal validity, including (1) heterogeneity in the outcome measures across trials, (2) heterogeneity in the follow-up assessments across trials, (3) heterogeneity in the sample characteristics across trials, (4) heterogeneity in the comparison conditions across trials, and (5) heterogeneity in the impact trajectories. We also demonstrate a technique for minimizing threats to external validity in synthesis analysis that may result from non-availability of some trial datasets. The proposed methods rely heavily on latent variable modeling extensions of the latent growth curve model, as well as missing data procedures. The goal is to provide strategies for researchers considering IDA.

PMID: http://www.ncbi.nlm.nih.gov/pubmed/28434055
DOI: http://dx.doi.org/10.1007/s11121-017-0769-1

Humphreys DK, Panter J, Ogilvie D. ***Questioning the application of risk of bias tools in appraising evidence from natural experimental studies: critical reflections on Benton et al., IJBNPA 2016.*** Int.J.Behav.Nutr.Phys.Act. 2017 Apr 19;14(1):49-017-0500-4

We recently read the article by Benton et al. which reviewed risk of bias in natural experimental studies investigating the impact of the built environment on physical activity (Benton et al., 2016; Int J Behav Nutr Phys Act 13:107). As a technical exercise in assessing risk of bias to understand study quality, we found the results of this study both interesting and potentially useful. However, it prompted a number of concerns with the use of risk of bias tools for assessing the quality of evidence from studies exploiting natural experiments. As we discuss in this commentary, the rigid application of such tools could have adverse effects on the uptake and use of natural experiments in population health research and practice.

PMID: http://www.ncbi.nlm.nih.gov/pubmed/28424086
Free Full Text: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5397808/pdf/12966_2017_Article_500.pdf
DOI: http://dx.doi.org/10.1186/s12966-017-0500-4

Ulrich R, Miller J. ***Some Properties of p-Curves, With an Application to Gradual Publication Bias.*** Psychol.Methods 2017 Apr 20

p-curves provide a useful window for peeking into the file drawer in a way that might reveal p-hacking (Simonsohn, Nelson, & Simmons, 2014a). The properties of p-curves are commonly investigated by computer simulations. On the basis of these simulations, it has been proposed that the skewness of this curve can be used as a diagnostic tool to decide whether the significant p values within a certain domain of research suggest the presence of p-hacking or actually demonstrate that there is a true effect. Here we introduce a rigorous mathematical approach that allows the properties of p-curves to be examined without simulations. This approach allows the computation of a p-curve for any statistic whose sampling distribution is known and thereby allows a thorough evaluation of its properties. For example, it shows under which conditions p-curves would exhibit the shape of a monotone decreasing function. In addition, we used weighted distribution functions to analyze how 2 different types of publication bias (i.e., cliff effects and gradual publication bias) influence the shapes of p-curves. The results of 2 survey experiments with more than 1,000 participants support the existence of a cliff effect at $p = .05$ and also suggest that researchers tend to be more likely to recommend submission of an article as the level of statistical significance increases beyond this p level. This gradual bias produces right-skewed p-curves mimicking the existence of real effects even when no such effects are actually present.

PMID: http://www.ncbi.nlm.nih.gov/pubmed/28425729
DOI: http://dx.doi.org/10.1037/met0000125

Writing, data presentation and peer review (4)

Anell A, Hagberg O, Liedberg F, Ryden S. ***A randomized comparison between league tables and funnel plots to inform health care decision-making.*** Int.J.Qual.Health Care 2016 Dec 1;28(6):816-823

Objective: Comparison of provider performance is commonly used to inform health care decision-making. Little attention has been paid to how data presentations influence decisions. This study analyzes differences in suggested actions by decision-makers informed by league tables or funnel plots. Design: Decision-makers were invited to a survey and randomized to compare hospital performance using either league tables or funnel plots for four different measures within the area of cancer care. For each measure, decision-makers were asked to suggest actions towards 12-16 hospitals (no action, ask for more information, intervene) and provide feedback related to whether the information provided had been useful. Setting: Swedish health care. Participants: Two hundred and twenty-one decision-makers at administrative and clinical levels. Intervention: Data presentations in the form of league tables or funnel plots. Main outcome measures: Number of actions suggested by participants. Proportion of appropriate actions. Results: For all four measures, decision-makers tended to suggest more actions based on the information provided in league tables compared to funnel plots (44% vs. 21%, P < 0.001). Actions were on average more appropriate for funnel plots. However, when using funnel plots, decision-makers more often missed to react even when appropriate. Conclusions: The form of data presentation had an influence on decision-making. With league tables, decision-makers tended to suggest more actions compared to funnel plots. A difference in sensitivity and specificity conditioned by the form of presentation could also be identified, with different implications depending on the purpose of comparisons. Explanations and visualization aids are needed to support appropriate actions.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28423165
DOI: http://dx.doi.org/10.1093/intqhc/mzw125

Fox MP, Lash TL. ***On the Need for Quantitative Bias Analysis in the Peer-Review Process***. Am.J.Epidemiol. 2017 Apr 18:1-4

Peer review is central to the process through which epidemiologists generate evidence to inform public health and medical interventions. Reviewers thereby act as critical gatekeepers to high-quality research. They are asked to carefully consider the validity of the proposed work or research findings by paying careful attention to the methodology and critiquing the importance of the insight gained. However, although many have noted problems with the peer-review system for both manuscripts and grant submissions, few solutions have been proposed to improve the process. Quantitative bias analysis encompasses all methods used to quantify the impact of systematic error on estimates of effect in epidemiologic research. Reviewers who insist that quantitative bias analysis be incorporated into the design, conduct, presentation, and interpretation of epidemiologic research could substantially strengthen the process. In the present commentary, we demonstrate how quantitative bias analysis can be used by investigators and authors, reviewers, funding agencies, and editors. By utilizing quantitative bias analysis in the peer-review process, editors can potentially avoid unnecessary rejections, identify key areas for improvement, and improve discussion sections by shifting from speculation on the impact of sources of error to quantification of the impact those sources of bias may have had.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28430833
DOI: http://dx.doi.org/10.1093/aje/kwx057

Hutton B, Wolfe D, Moher D, Shamseer L. ***Reporting guidance considerations from a statistical perspective: overview of tools to enhance the rigour of reporting of randomised trials and systematic reviews.*** Evid Based.Ment.Health. Epub 2017 Mar 31

OBJECTIVE: Research waste has received considerable attention from the biomedical community. One noteworthy contributor is incomplete reporting in research publications. When detailing statistical methods and results, ensuring analytic methods and findings are completely documented improves transparency.

For publications describing randomised trials and systematic reviews, guidelines have been developed to facilitate complete reporting. This overview summarises aspects of statistical reporting in trials and systematic reviews of health interventions. METHODS: A narrative approach to summarise features regarding statistical methods and findings from reporting guidelines for trials and reviews was taken. We aim to enhance familiarity of statistical details that should be reported in biomedical research among statisticians and their collaborators. RESULTS: We summarise statistical reporting considerations for trials and systematic reviews from guidance documents including the Consolidated Standards of Reporting Trials (CONSORT) Statement for reporting of trials, the Standard Protocol Items: Recommendations for Interventional Trials (SPIRIT) Statement for trial protocols, the Statistical Analyses and Methods in the Published Literature (SAMPL) Guidelines for statistical reporting principles, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement for systematic reviews and PRISMA for Protocols (PRISMA-P). Considerations regarding sharing of study data and statistical code are also addressed. CONCLUSIONS: Reporting guidelines provide researchers with minimum criteria for reporting. If followed, they can enhance research transparency and contribute improve quality of biomedical publications. Authors should employ these tools for planning and reporting of their research.
PMID: http://www.ncbi.nlm.nih.gov/pubmed/28363989
DOI: https://doi.org/10.1136/eb-2017-102666

Kovanis M, Trinquart L, Ravaud P, Porcher R. ***Evaluating alternative systems of peer review: a large-scale agent-based modelling approach to scientific publication.*** Scientometrics 2017:1-21

The debate on whether the peer-review system is in crisis has been heated recently. A variety of alternative systems have been proposed to improve the system and make it sustainable. However, we lack sufficient evidence and data related to these issues. Here we used a previously developed agent-based model of the scientific publication and peer-review system calibrated with empirical data to compare the efficiency of five alternative peer-review systems with the conventional system. We modelled two systems of immediate publication, with and without online reviews (crowdsourcing), a system with only one round of reviews and revisions allowed (re-review opt-out) and two review-sharing systems in which rejected manuscripts are resubmitted along with their past reviews to any other journal (portable) or to only those of the same publisher but of lower impact factor (cascade). The review-sharing systems outperformed or matched the performance of the conventional one in all peer-review efficiency, reviewer effort and scientific dissemination metrics we used. The systems especially showed a large decrease in total time of the peer-review process and total time devoted by reviewers to complete all reports in a year. The two systems with immediate publication released more scientific information than the conventional one but provided almost no other benefit. Re-review opt-out decreased the time reviewers devoted to peer review but had lower performance on screening papers that should not be published and relative increase in intrinsic quality of papers due to peer review than the conventional system. Sensitivity analyses showed consistent findings to those from our main simulations. We recommend prioritizing a system of review-sharing to create a sustainable scientific publication and peer-review system.
DOI: http://dx.doi.org/10.1007/s11192-017-2375-1