Advances in peer review

Being a scientific writer: seminar at CHUV
Lausanne, 14 January 2016

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Head of Research, The BMJ

Competing interests

I'm editor in chief of BMJ Open and Head of Research at the BMJ, a wholly owned subsidiary of the British Medical Association (BMA)

Part of the revenue for BMJ (the company) comes from drug & device manufacturers through advertising, reprint sales, & sponsorship. The BMJ and BMJ Open are open access journals that charge author fees for publication of research

I'm working on a strategy to see how BMJ might help to build health research capabilities in emerging economies. I'm editorial lead for the BMJ Research to Publication eLearning programme (by subscription)

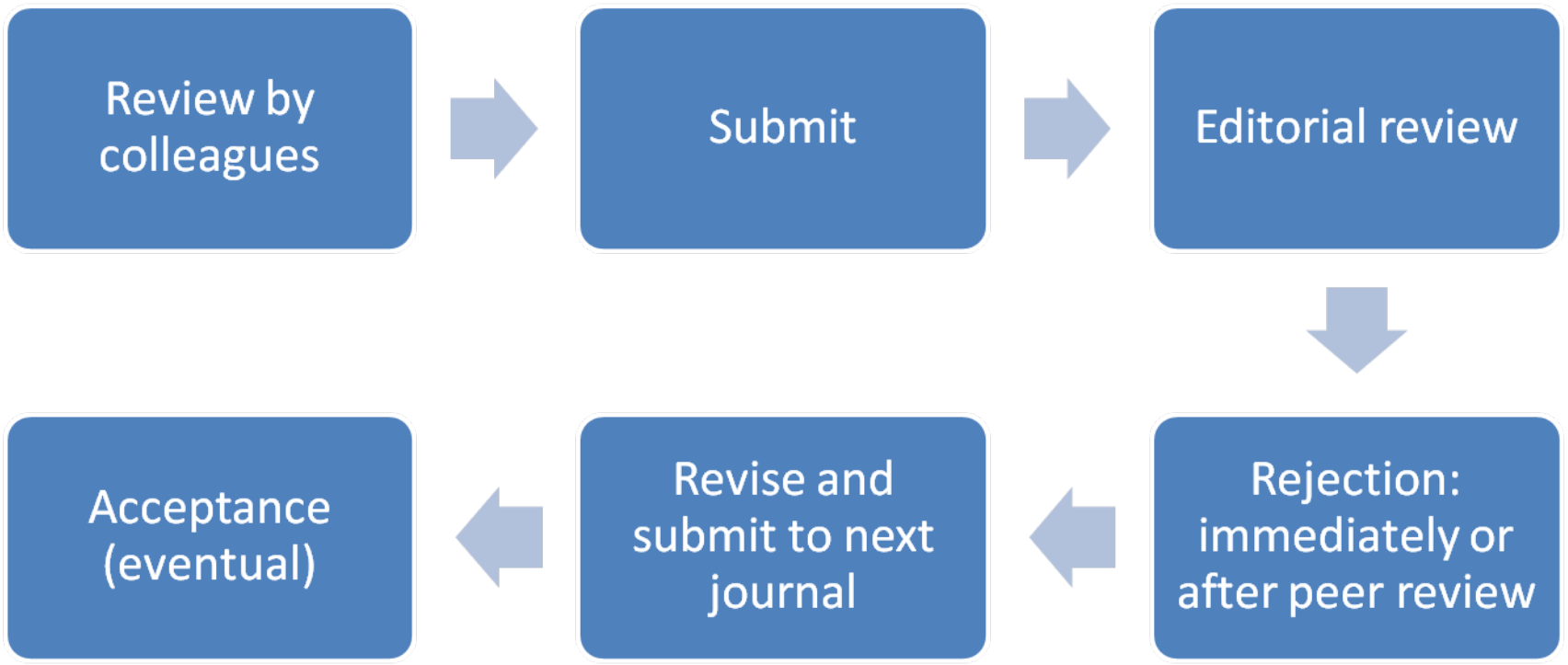
My annual bonus scheme is based partly on the overall financial performance of both BMJ and The BMJ

Key points for discussion

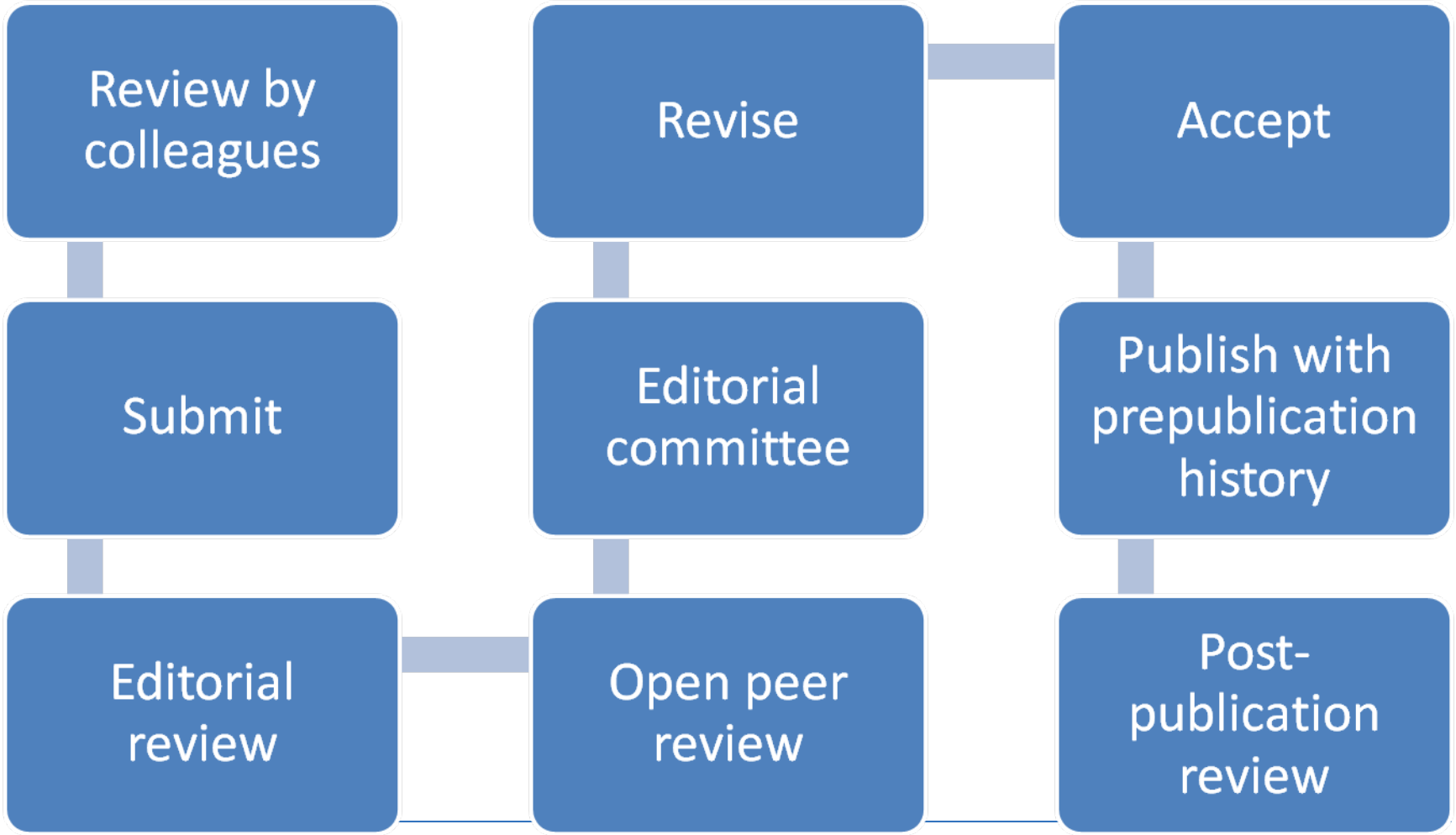
- how can we optimise the benefits of peer review?
- is peer review running out of steam?
- is transparency better than pragmatism?
  - what do open peer review and postpublication review add?
- what are the benefits of patient review?
- what is happening with data sharing?

What journals provide:
peer review & scholarly publishing

Typical peer review process (repeated)



Peer review at The BMJ



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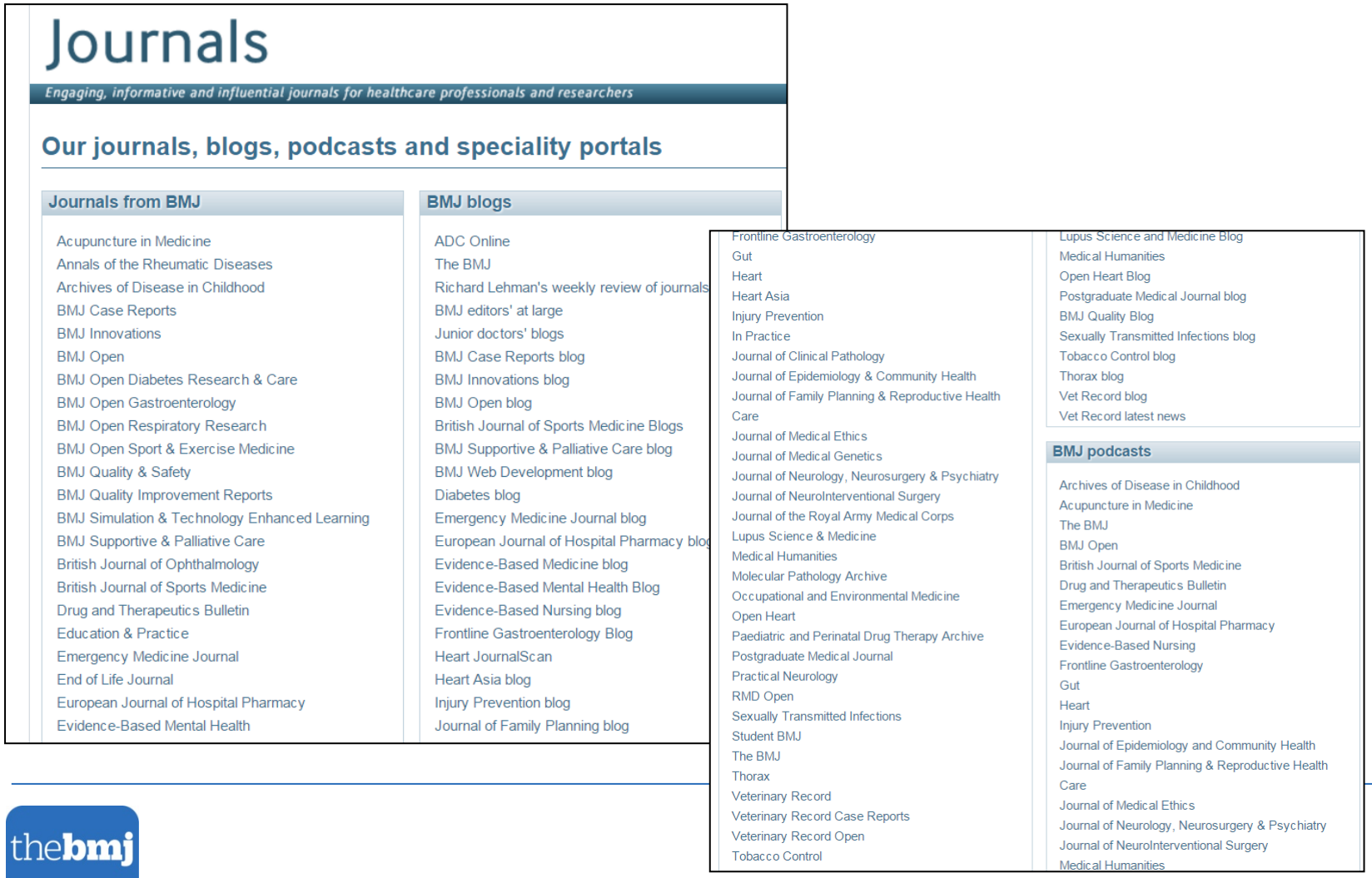
Journal families: making submission easier



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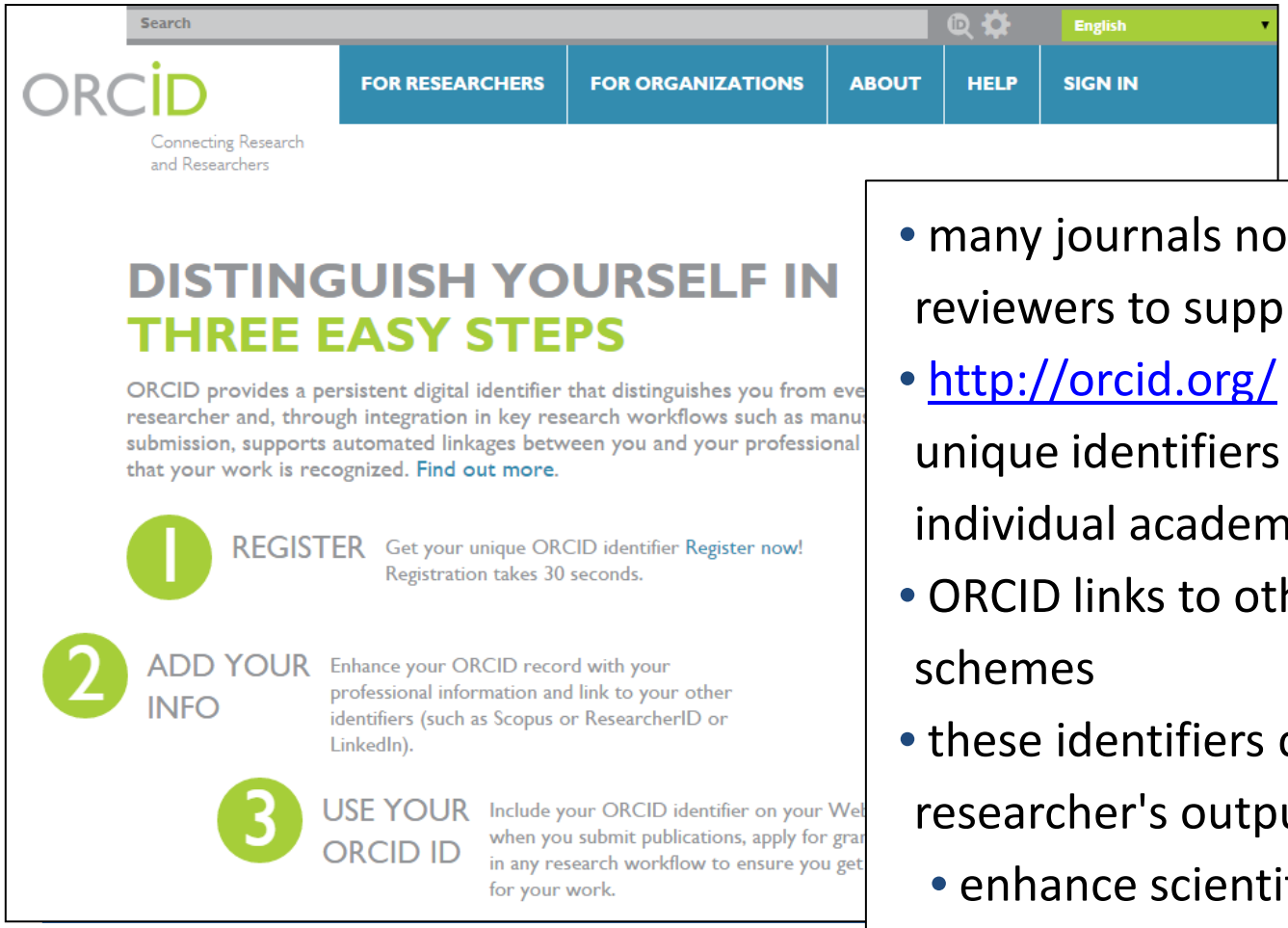
How journals try to minimise bias in peer review: open review

Open review
- open (signed) review
- open (to all) review – in real time
- open review with prepublication histories

For open and closed peer review
- reviewers should declare competing interests

ORCID: Open Researcher and Contributor ID



- many journals now ask authors and reviewers to supply ORCIDs
- http://orcid.org/ = online registry of free, unique identifiers for nearly 2 million individual academics
- ORCID links to other researcher ID schemes
- these identifiers can be linked to each researcher's output in order to:
  - enhance scientific discovery process
  - improve efficiency of research funding
  - aid collaboration

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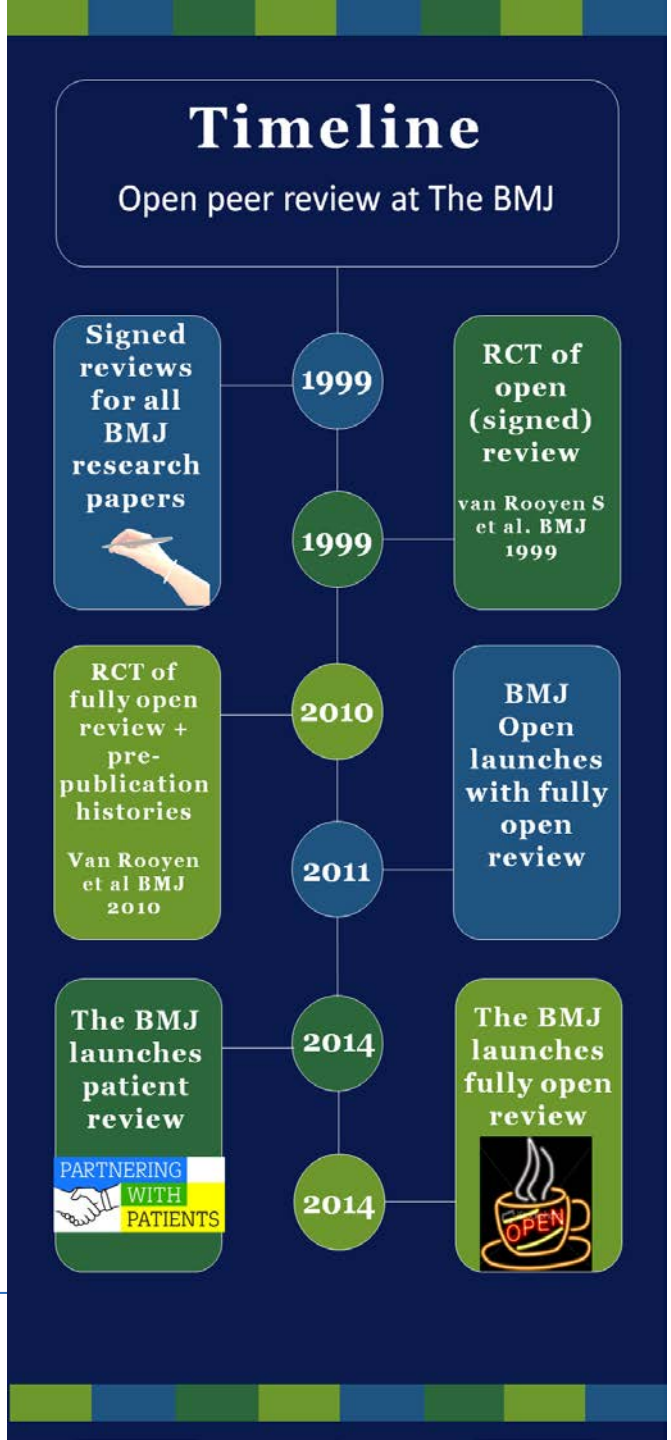
The BMJ http://www.bmj.com/theBMJ publishes all research with open access and, now, with a detailed prepublication history.

This open peer review policy draws on evidence from two randomised controlled trials of open peer review, and on experience of mandatory open peer review for more than 3000 published papers at BMJ Open http://bmjopen.bmj.com/



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Does open peer review improve research papers?

For 93 randomised controlled clinical trials published in BMC Medicine series journals in 2012 with pre-publication histories, reviewers requested relatively few changes.

Most changes requested by peer reviewers had a positive impact on the reporting of the final manuscript (n=27). Some changes requested by peer reviewers, however, had a negative impact, such as adding additional unplanned analyses (n=15).

This information is essential to enable readers to have a clear and transparent account of the peer review process. We would strongly recommend this model to other leading journals.

BMJ

Hopewell S, Collins GS, Boutron I, Yu LM, Cook, Shanyinde M et al. Impact of peer review on reports of randomised trials published in open peer review journals: retrospective before and after study. *BMJ* 2014;349:g4145

How The BMJ is working with patients to publish relevant research

- authors of research papers state if/how they involved patients in setting research question, outcome measures, design and implementation of study, and results dissemination
- patient review of papers
- patient partnership editor, patient editor

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Patient peer review at The BMJ

"If you're a patient living with disease, a carer of a patient, a patient advocate acting on behalf of a patient group, or you play a leading part in advocating for patient participation and partnership in healthcare we'd like to invite you to take part in a unique initiative...

The BMJ has committed to improving the relevance and patient centredness of its research, education, analysis, and editorial articles by asking patients to comment on them. "

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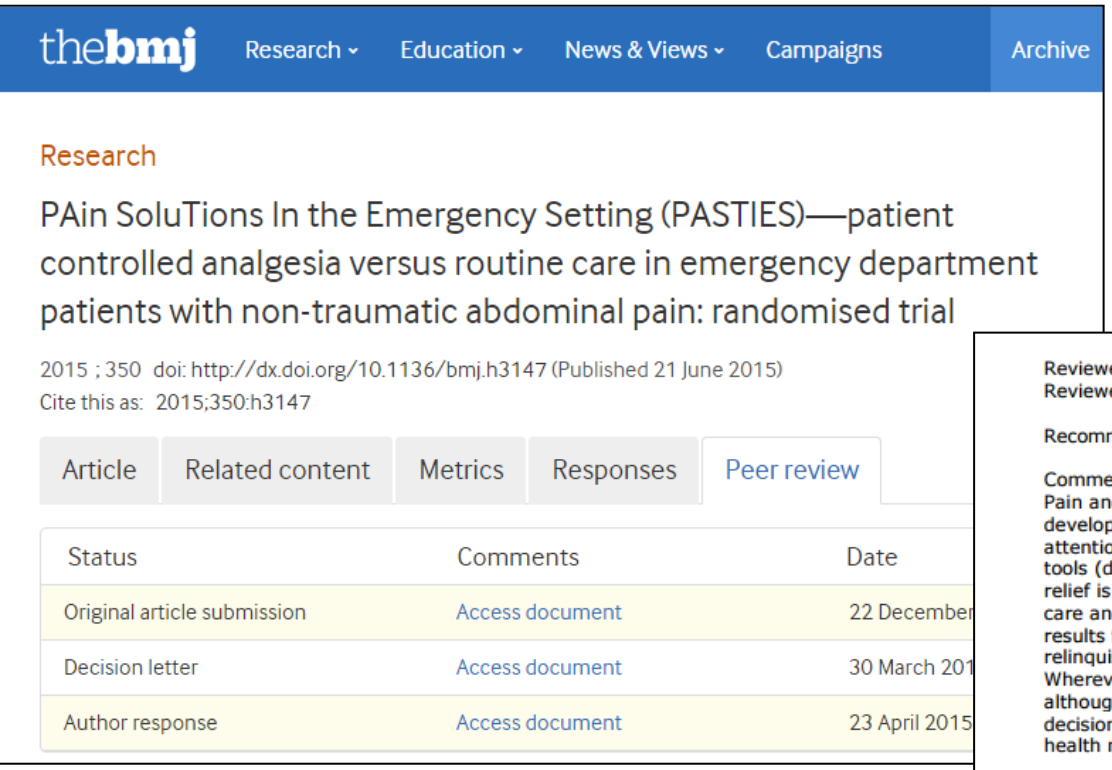

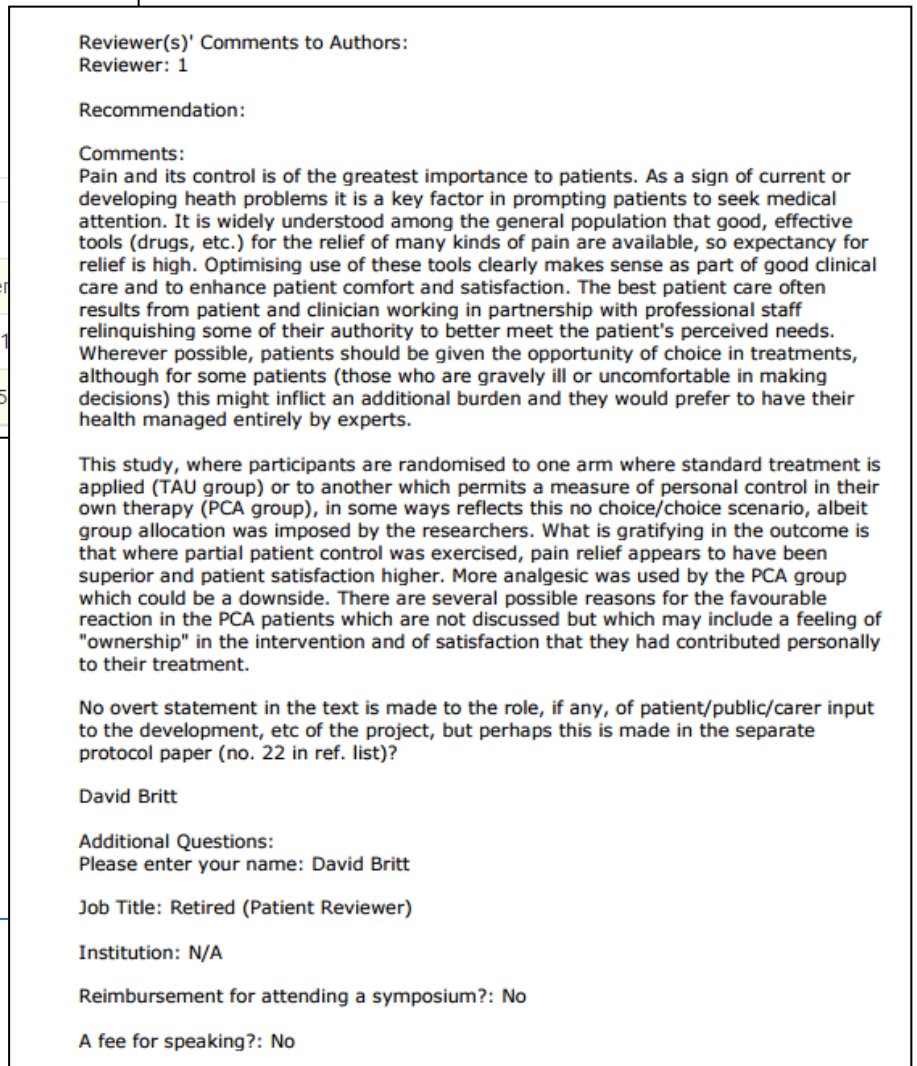

Open peer review with patient review

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Questions for patient peer reviewers at The BMJ

Does this issue matters to you, and/or other patients and carers? Any areas relevant to patients and carers missing or to highlight?

If the study was of an intervention or treatment, do you think it will really work in practice? What challenges might patients face? Are the outcomes and issues discussed in the article important to patients? Are there others that should have been considered?

Do you have any suggestions that might help the author(s) make their paper more useful for doctors to discuss with patients?

"I recently reviewed a paper for *The BMJ* and as a non-academic I was terrified of saying what I actually thought of it – I agonised over the words.... I wanted to be constructive, challenging, and polite, but the bottom line was that I felt that the authors of the paper were in an academic bubble and very divorced from what I experience, read, and talk about in real life.

A huge relief then to see the other reviewer felt the same way! It was a steep learning curve and a big leap to have faith in my own views and not be afraid to share these with the authors and *The BMJ*'s editorial team."

Questions to BMJ authors I

- did you involve patients/service users/carers/lay people in the study design?
- did their priorities and experiences inform the development and/or selection of outcome measures?
- were they involved in developing plans for participant recruitment and study conduct? If so, how?

Questions to BMJ authors II

- have you planned to disseminate the results of the study to participants?
- are participants thanked in the paper?
- for articles reporting randomised controlled trials: did you assess the burden of the intervention on patients' quality of life and health? If so, what evaluation method did you use, and what did you find?

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RESEARCH INVOLVEMENT AND ENGAGEMENT

Research Involvement and Engagement is an interdisciplinary, health and social care journal focussing on patient and wider involvement and engagement in research, at all stages. The journal is co-produced by all key stakeholders, including patients, academics, policy makers and service users.

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Authors should respond promptly to substantive queries and requests from the editors or readers after publication, particularly regarding the integrity of the published article

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- complaints to the editor, the publisher, or via the Committee on Publication Ethics (COPE)
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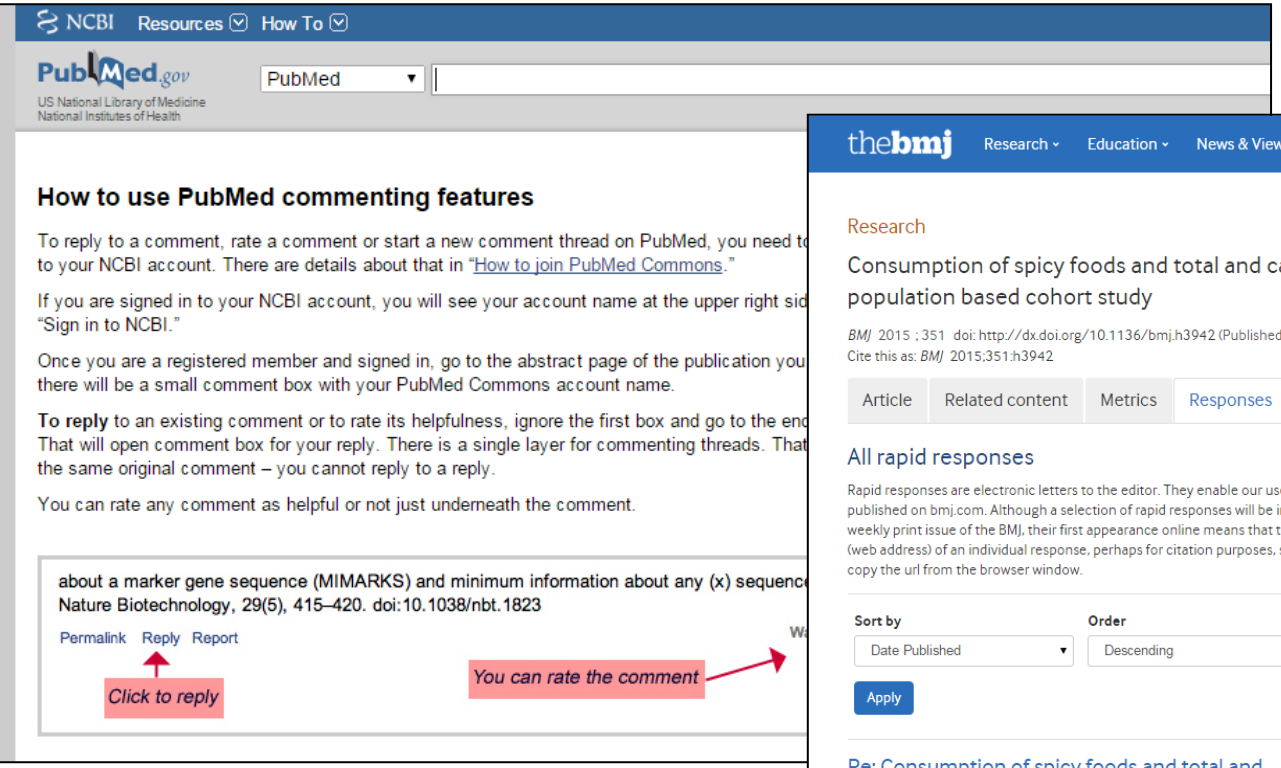
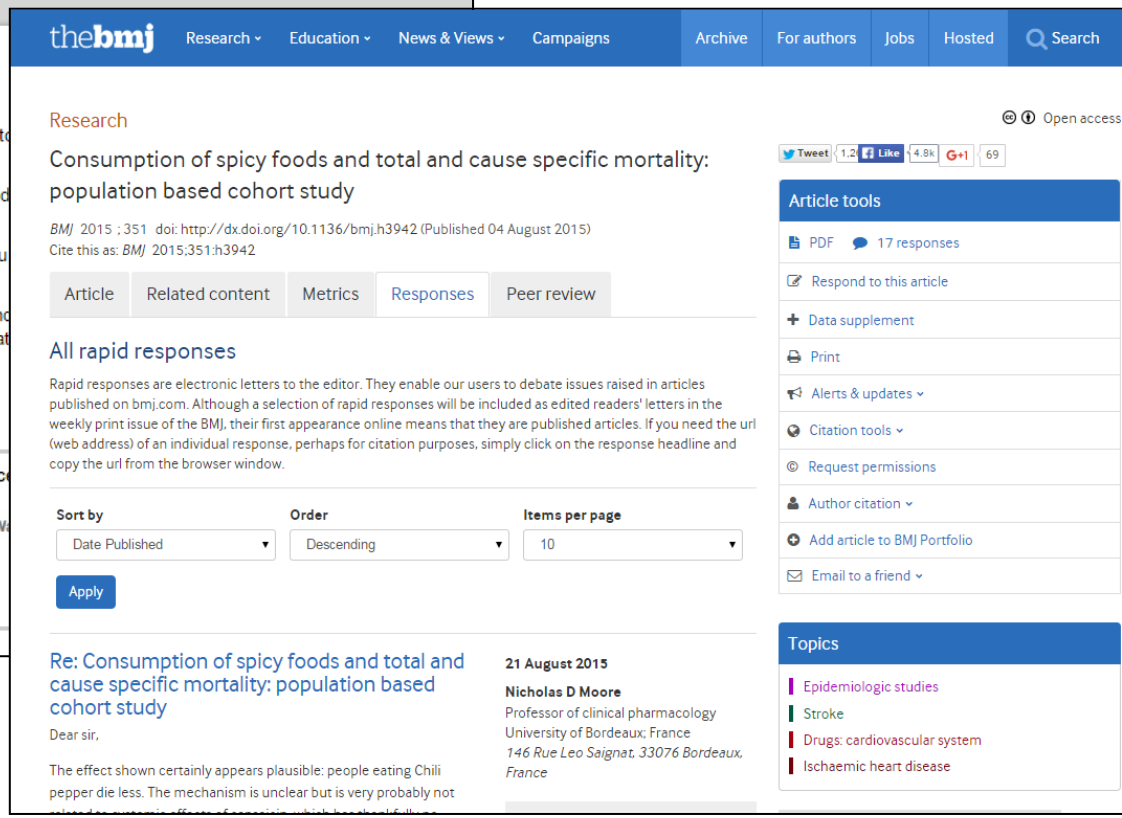
Online post publication peer review





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http://www.ncbi.nlm.nih.gov/pubmedcommons/help/addcomments/

Postpublication review can uncover fraud

The goal of PubPeer is to foster a scientific environment where robust, high-quality research is valued, while providing a forum to discuss the problems of unreproducible, misleading, misconceived or fraudulent work

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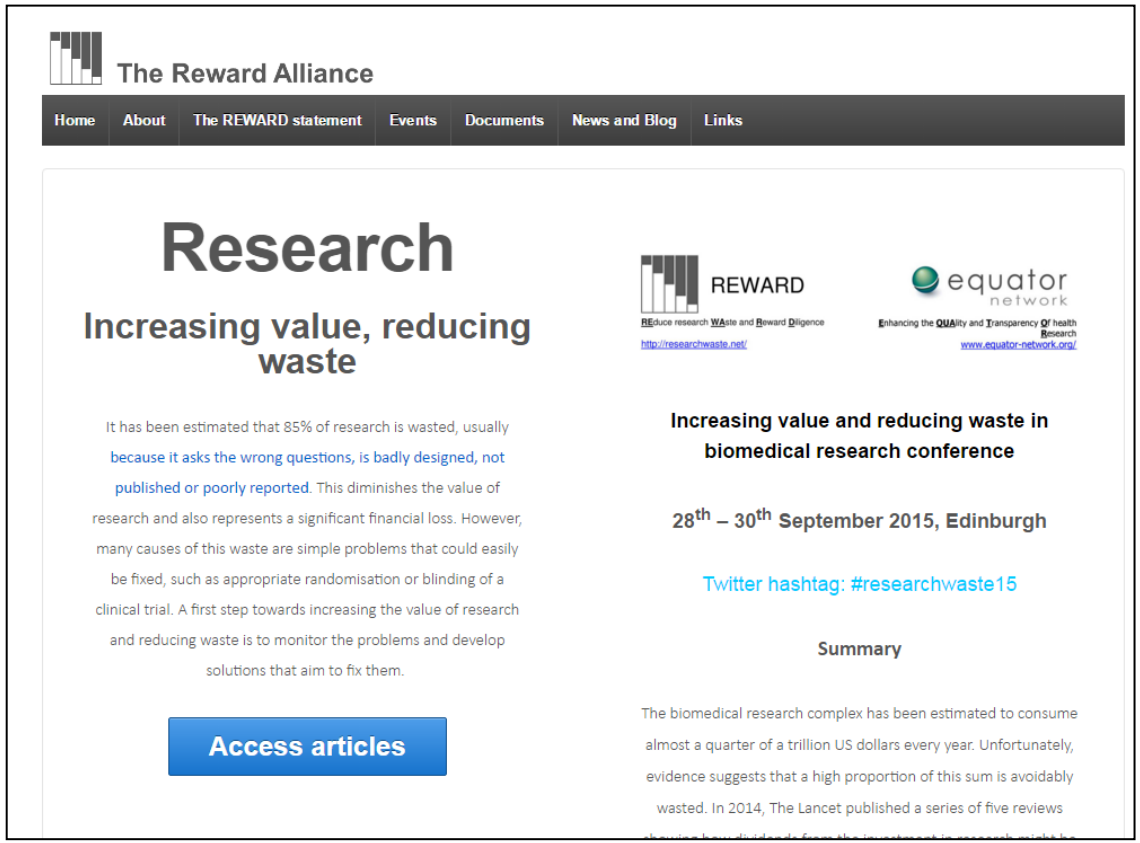
Anonymous comments at PubPeer on Nature STAP paper, very soon after publication https://pubpeer.com/publications/24476887

We need research that is less wasteful, more relevant



http://researchwaste.net/

85% of the resources for biomedical research are wasted, costing more than $100 billion a year, the REWARD Alliance estimates

Stages of waste in the production and reporting of research evidence relevant to clinicians and patients; from Chalmers and Glasziou, The Lancet 2009

http://researchwaste.net/about/

Replication: desirable, but not always possible

- scientific evidence is strengthened when important findings are replicated by multiple independent investigators using independent data, analytical methods, laboratories, and instruments
- replication is standard in basic sciences
- it is critically important in epidemiological studies, particularly when they affect policy or regulatory decisions
- but the time and expense required for epidemiological studies means that many are often not fully replicable, so policy decisions must be made with the available evidence

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Peng RD, Dominici F, Zeger SL. Reproducible Epidemiologic Research. Am J Epidemiol 2006;163: 783-9 doi:10.1093/aje/kwj093

Reproducibility: should always be possible

- reproducibility is an attainable minimum standard
- independent investigators subject the original data to their own analyses and interpretations
- reproducibility requires datasets and software to be available for:
  - verifying published findings
  - conducting alternative analyses of the same data
  - eliminating uninformed criticisms that do not stand up
  - expediting interchange of ideas among investigators

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Peng RD, Dominici F, Zeger SL. Reproducible Epidemiologic Research. Am J Epidemiol 2006;163: 783-9 doi:10.1093/aje/kwj093

ICMJE: principles of data sharing; with full policy coming in 2016

- data can be understood and reanalyzed by others
- authors should share data on reasonable request
- all data that underpin the published results, incl. recent/current data on harms, should be shared
- de-identified individual patient data, data dictionary statistical plan & code used to analyze the data
- IRBs should ensure patient informed consent covers all this
- journals may investigate breaches, express concern, retract
- data users must commit to making results of their analyses public, report methods, credit source

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http://www.icmje.org/news-and-editorials/principles_data_sharing_jan2014.html

The BMJ mandates data sharing on request

Applies to any paper reporting main endpoints of an RCT of one or more drugs or medical devices in current use.

2012: 31 main reports of RCTs published. None about devices; 6 about drugs. 1 industry sponsored. 2 with datasets available from corresponding authors on request.

2013: Policy starts in January. 6 eligible trials published: all complied. None rejected because of policy.

2014: 5 eligible trials all complied.

July 2015: extended policy to all trials submitted to The BMJ

Godlee F, Groves T. BMJ 2012;345:e7888
Loder E, Groves T. BMJ 2015; 350 :h23733

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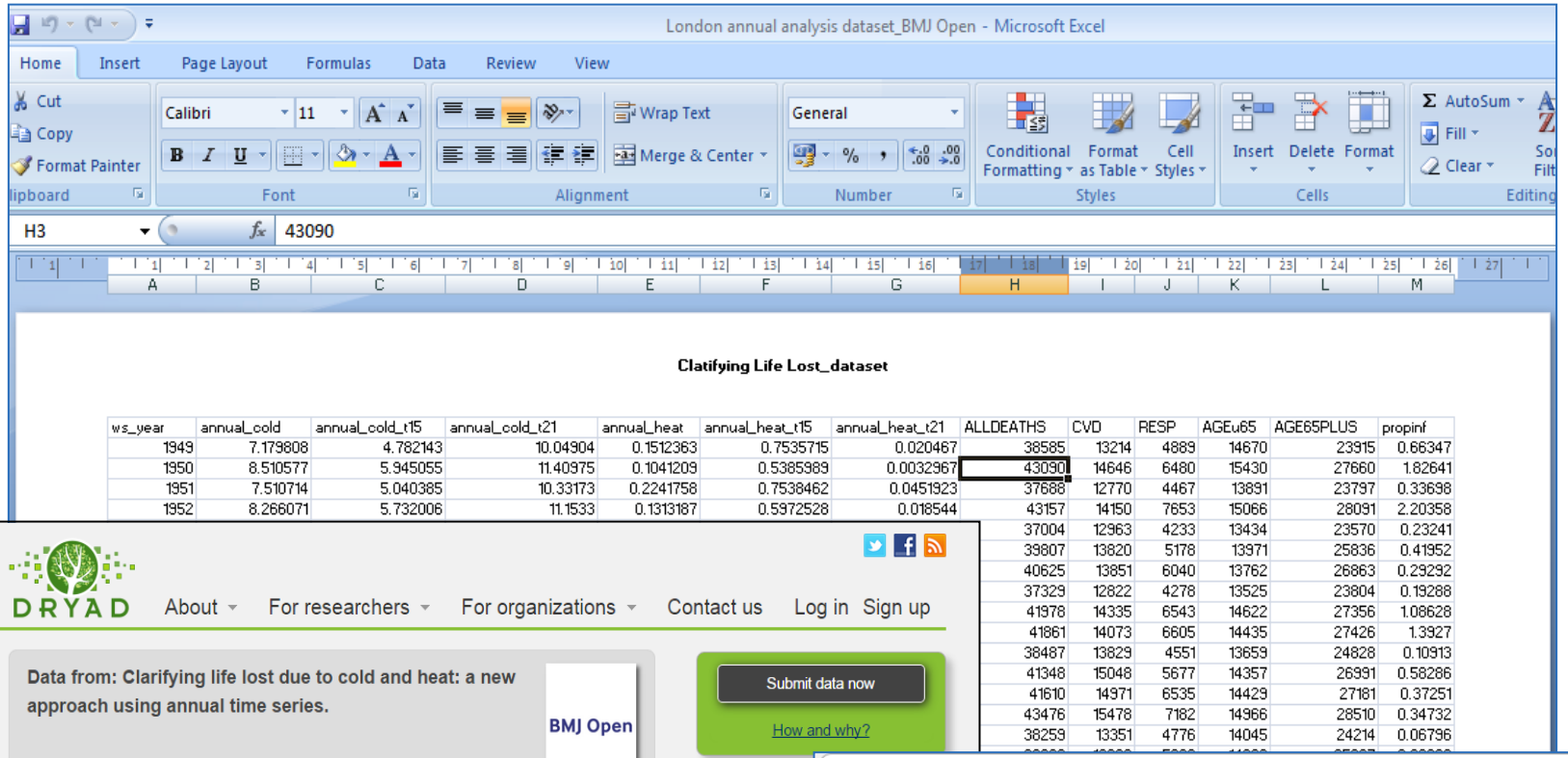

Clatifying Life Lost_dataset

ws_year	annual_cold	annual_cold_t15	annual_cold_t21	annual_heat	annual_heat_t15	annual_heat_t21	ALLDEATHS	CVD	RESP	AGEu65	AGE65PLUS	propinf
1949	7.179808	4.782143	10.04904	0.1512363	0.7535715	0.020467	38585	13214	4889	14670	23915	0.66347
1950	8.510577	5.945055	11.40975	0.1041209	0.5385989	0.0032967	43090	14646	6480	15430	27660	1.82641
1951	7.510714	5.040385	10.33173	0.2241758	0.7538462	0.0451923	37688	12770	4467	13891	23797	0.33698
1952	8.266071	5.732006	11.1533	0.1313187	0.5972528	0.018544	43157	14150	7653	15066	28091	2.20358
							37004	12963	4233	13434	23570	0.23241
							39807	13820	5178	13971	25836	0.41952
							40625	13851	6040	13762	26863	0.29292
							37329	12822	4278	13525	23804	0.19288
							41978	14335	6543	14622	27356	1.08628
							41861	14073	6605	14435	27426	1.3927
							38487	13829	4551	13659	24828	0.10913
							41348	15048	5677	14357	26991	0.58286
							41610	14971	6535	14429	27181	0.37251
							43476	15478	7182	14966	28510	0.34732
							38259	13351	4776	14045	24214	0.06796

Files in this package

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Additionally, please cite the Dryad data package:

> Rehill N, Armstrong B, Wilkinson P (2015) Data from: Clarifying life lost due to cold and heat: a new approach using annual time series. Dryad Digital Repository. http://dx.doi.org/10.5061/dryad.02k83

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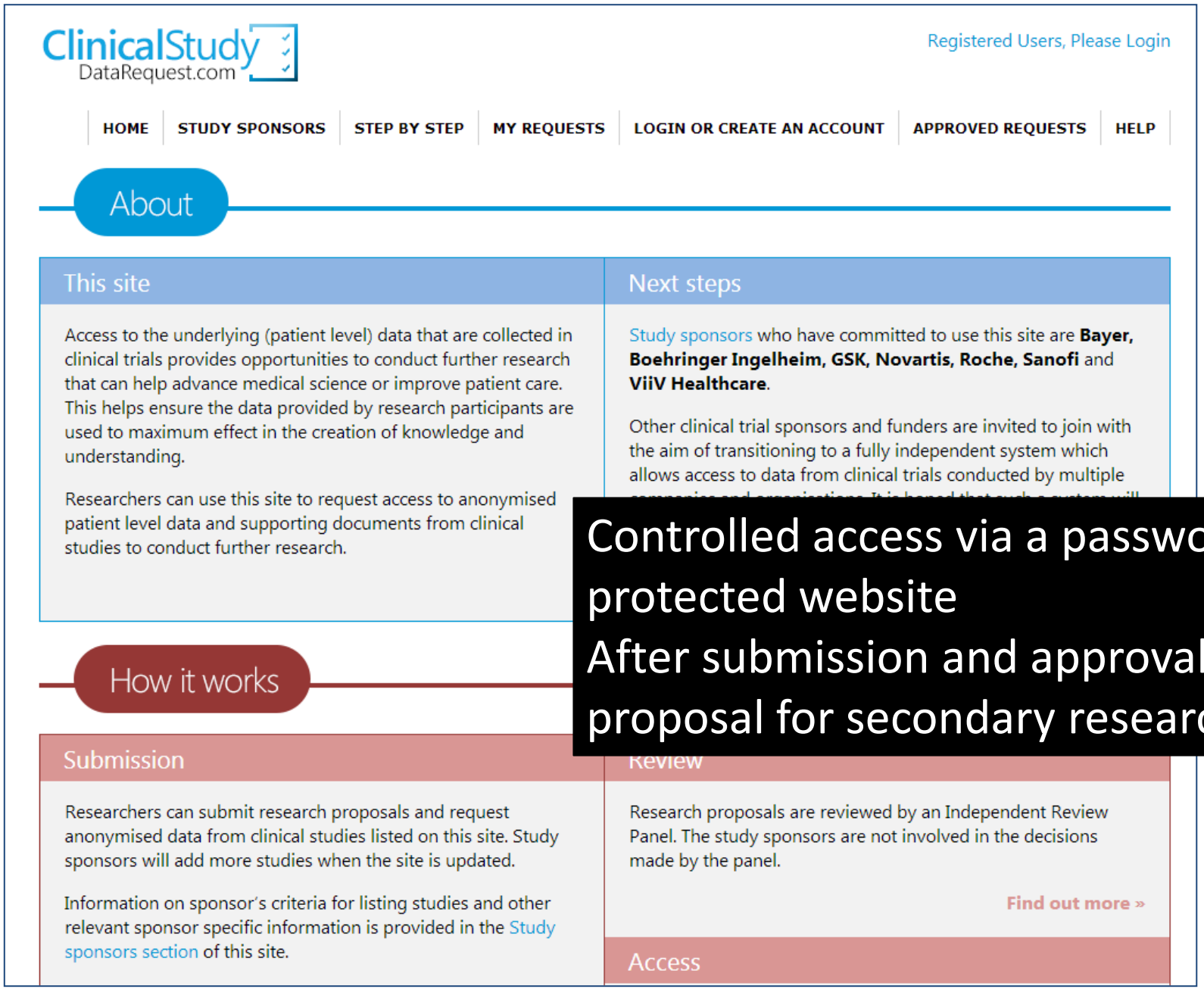

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