

**BMJ**

## General introduction to communication of research results

Dr. Wim Weber, The BMJ

Introduction

- A naturalist's life would be happy one if he had only to observe and never to write (Charles Darwin)
- In science, no matter how spectacular the results are, the work is not completed until the results are published.

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What I will cover

- A little history on research papers
- Peer review
- How does The BMJ handle research papers
- Research metrics: Impact factors etc.
- How have journals evolved since the internet ?
- Patient involvement
- Practical exercise: writing a plain language summary

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Scientific written communication

- Reports
- Theses or dissertations
- Journal articles
- Books and book chapters
- Technical manuals/users guides
- Research or grant proposals
- Slide presentations
- Posters

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The essence of a research paper

- Peer review

First peer reviewed publication 1665 by Henry Oldenburg

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Peer review was pioneered in medicine

- Greater need for quality control
- Increasing specialisation
- Varying development in 19th and 20th century

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1764: Académie royale des sciences



- Papers (by non-academicians) could be referred to a committee of *rapporteurs* (academicians)
- Joint reports
- Testing the knowledge claims (e.g. by replication of experiments)
- Abandoned in 1830s as unsustainable

See J. McClellan, 'Specialist Control' (2004)



1953: Nature

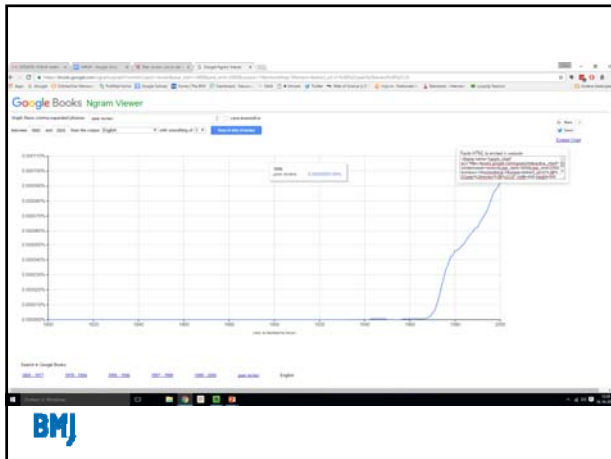


'I published a few things in *Nature* when I was a PhD student [in the 1960s] and almost anything could get into it at the time, if it wasn't actually wrong. Refereeing was pretty erratic and I think they took more notice of where it came from than the content'

Walter Gratzer, in M. Baldwin, 'Credibility, peer review and *Nature*' (2015)



Sir W.L. Bragg, who wrote to *Nature* endorsing Watson and Crick's double helix article

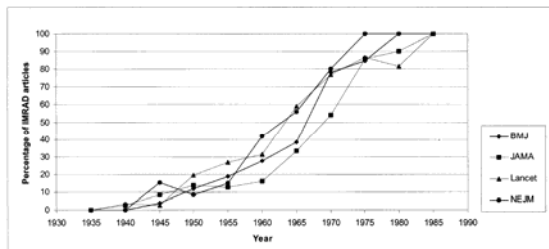


IMRAD structure of a research paper

- Introduction: why
- Methods: how
- Results: what did you find?
- Discussion: what does it mean?



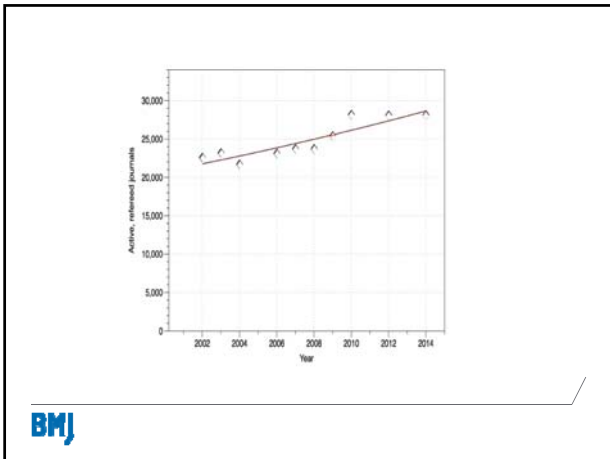
Evolution of the IMRAD structure in research papers



More Journals...!

- 1665 1 scientific periodical
- 1790 ~460 scientific periodicals possibly extant (1,000 periodicals believed to be founded by this date; but only 46% last more than a decade) (Kronick, 1976)
- 1900 1,400 scientific periodicals indexed in Royal Society's *Catalogue of Scientific Papers*
- 1934 36,000 periodicals in the *World List of Scientific Periodicals*
- 1981 43,000 scientific periodicals in British Library Lending Division (cited in Larsen & von Ins, 2010)
- 2004 250,000 periodicals in Ulrich's International Serials Database; 21,000 are refereed research journals (Dalen & Klammer, 2005)
- 2010 24,000 'serious scientific journals' (Larsen & von Ins, 2010)





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### Problems with peer review

- Famous papers NOT peer reviewed: Einstein 1905, Watson & Crick 1953
- Famous papers passed peer review, but fraudulent: Jan Hendrik Schön, Igor and Grichka Bogdanov, Diederik Stapel
- Famous papers first rejected :Krebs & Johnson's 1937, Black & Scholes 1973

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### Biases in peer review

**Author:** prestige, (author/institution), gender, geography

**Paper:** positive results, English language

**Reviewer:** competing interests, personal issues

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### Open or closed peer review: the evidence

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### How to minimise bias

#### Closed review

- double blind review
- single blind review
- authors masked
- reviewers masked

#### Open review

- open (signed) review
- open (to all) review
- post-publication openness

**For open and closed**  
competing interest statements

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### Some comments....

" This thief ...stole my work...because he is the head of the international ... society. You know that this is true...You all support the thief when you publish his work and ignore mine."

" Does XX need professional help? ...If you knew more about his personal background you might better understand the psychological forces behind his crusade against me ...if you are interested I can send you information about his personal finances and the story of his parents who he never mentions or acknowledges."

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We have done a number of trials to improve peer review

- Does blinding help ?
- Can one select better reviewers ?
- Can we train them to become better ?

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Which open review models at which journals?

**Open (signed) pre-publication:** BMJ, JRSM, BioMed Central medical journals \*\*

**Community:** Atmospheric Chemistry and Physics

**Two step:** Journal of Interactive Media in Education

**Post-publication commentary:** PLoS ONE, Nature Proceedings

**Open and post-publication only:** F1000 and PeerJ

**Portable peer review:** Rubriq and Peerage of Science

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So, telling peer reviewers that their signed reviews of research papers will be posted on the BMJ's website:

- does not affect the quality of their review
- does increase time to complete their review

And:

Reviewers, although not authors, are reluctant to participate in an experiment of very open peer review

*Van Rooyen. BMJ. 2010; 341: c5729.*

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# The Editorial Process at The BMJ

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BMJ peer review process

Research submitted	Screen	External review	Editorial meeting	Accept
4-5000 annually	3-4000 rejected	Approx 1000 for open review 500 then rejected	500 with Editor and adviser, statistician, BMJ team	4-7% with Open access No word limits BMJ pico Editorials

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## Open peer review at the BMJ

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What we say to reviewers

“The BMJ uses open peer review so that authors know who has reviewed their work. This means that you will be asked to give your name and position, and any relevant competing interests, in your report on any article we send you. It does not mean that authors should contact you directly...nor should you contact the author directly.

We will pass on your signed report to the author, so please don't make any comments that you don't wish them to see.

If you experience any adverse event arising from open peer review, or would like to tell us your views, please email us”



BMJ appeals

- Serious appeals welcomed
- Criticisms addressed
- Up to 20% accepted
- But only one appeal
- Make it good



A few words on rules and regulations around research papers



General guidance on writing papers

International Committee of Medical Journal Editors uniform requirements for manuscripts submitted to biomedical journals

<http://www.icmje.org/>

Reporting guidelines for research, at the EQUATOR network

<http://www.equator-network.org/>



ICMJE authorship = investigatorship

Should be based only on **substantial** contribution to:

- conception and design, acquisition of data, **or** data analysis and interpretation
- drafting the article **or** revising it critically for important intellectual content
- final approval of the version to be published
- agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



A person has a competing interest when he or she has an attribute that is *invisible* to the reader or editor but which *may* affect his or her judgment

Always declare a competing interest, particularly one that would embarrass you if it came out afterwards

[http://www.icmje.org/coi\\_disclosure.pdf](http://www.icmje.org/coi_disclosure.pdf)

## Research metrics

- Impact factor
- H-factor

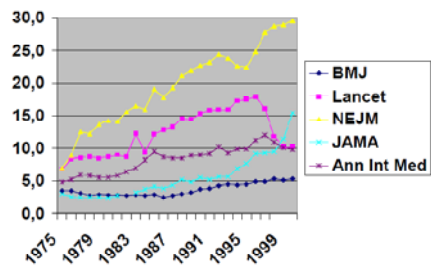
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## Impact factor

- the number of citations received by articles published in that journal during the two preceding years, divided by the total number of articles published in that journal during the two preceding years
- E.g. IF of The BMJ 2016 = 19.6
- Calculated each year by Thomson-Reuters:
- Web of Science

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Impact factors 1975-2000



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## H-factor

A scholar with an index of h has published h papers each of which has been cited in other papers at least h times.

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## How has the internet changed publication?

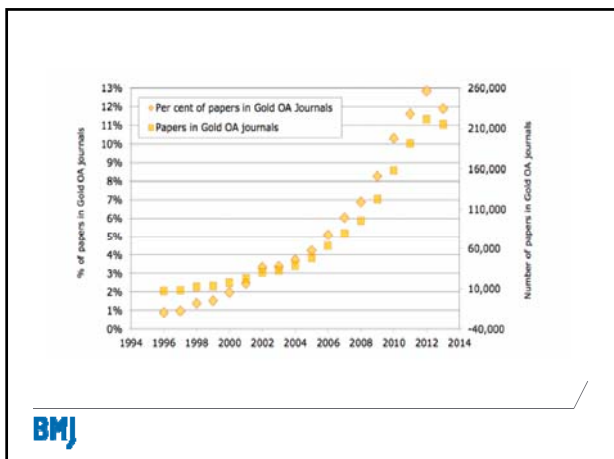
- Open access
- Other channels: video/ podcast etc
- Social media

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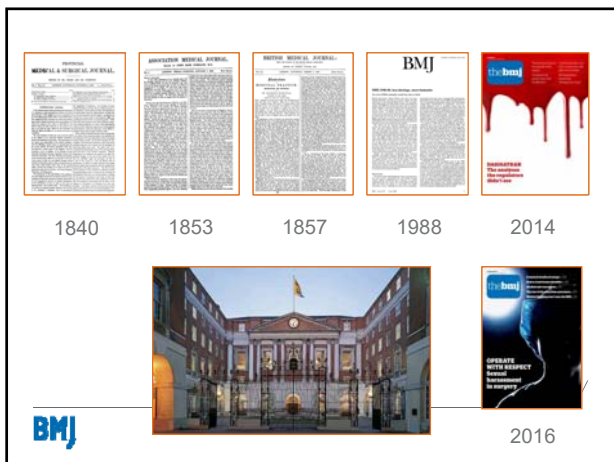
## More publication models: Open Access

- Open access, in various forms
  - Gold
  - Hybrid
  - Delayed
  - Green
- Traditional publishing, subscription-based

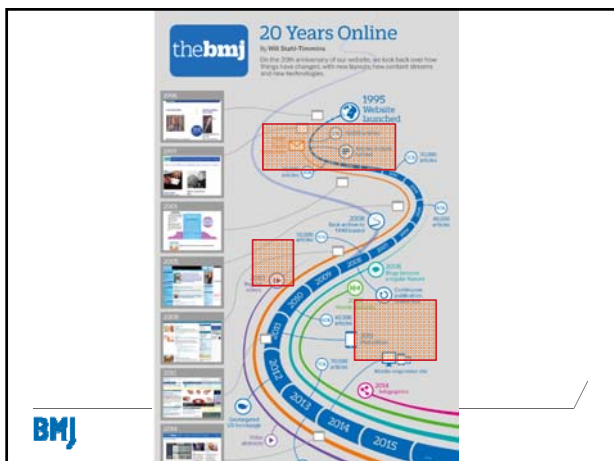
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### Change at The BMJ



- 1995 • First general medical journal to establish a substantial online presence
- 1998 • All research papers published online in full
- 1999 • Electronic Long Print Short (ELPS)
- 2008 • Picos
- 2013 • Video abstracts
- 2015 • Structured abstracts



**Research**  
Benzodiazepine use and risk of incident dementia or cognitive decline: prospective population based study

BMJ 2016; 352: doi: <http://dx.doi.org/10.1136/bmj.g90> (Published 02 February 2016)

Article links: Full text, Responses, Request permissions, Alert me when this article is updated, Email to a friend, Topics

**Abstract**  
Objective To determine whether higher cumulative use of benzodiazepines is associated with a higher risk of dementia or more rapid cognitive decline.  
Design Prospective population based cohort.

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Article links: Full text, Metrics, Responses, Peer review

**Abstract**  
Objective To determine whether higher cumulative use of benzodiazepines is associated with a higher risk of dementia or more rapid cognitive decline.  
Design Prospective population based cohort.

**Related articles**  
No related articles found.

**See more**  
Research Association between payments from manufacturers of pharmaceuticals to physicians and regional prescribing: cross sectional ecological study

**Research**  
Benzodiazepine use and risk of incident dementia or cognitive decline: prospective population based study

BMJ 2016; 352: doi: <http://dx.doi.org/10.1136/bmj.g90> (Published 02 February 2016)

Article usage table:

Month	Abstracts	Full text	PDF
September 2016	4	1209	112
August 2016	6	2112	247
July 2016	2	1762	257
June 2016	5	2766	306
May 2016	7	2597	396
April 2016	3	2808	843
March 2016	12	4671	872
February 2016	71	20149	2848

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Article history table:

Status	Comment	BMJ Article Related Rapid Responses	Date
Original article submission	Access document		13 April 2015
First decision	Access document		28 May 2015
First response	Access document		03 August 2015
First revised article	Access document		03 August 2015
Second decision	Access document		24 August 2015
Second response	Access document		22 September 2015
Second revised article	Access document		22 September 2015
Third Decision	Access document		21 November 2015
Third Response	Access document		11 December 2015

**The BMJ Academic edition**

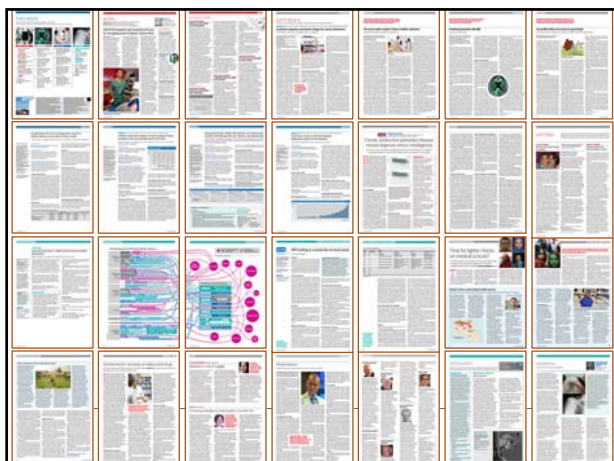
**What is The BMJ Academic edition?**  
The BMJ Academic edition is a monthly print only journal. It includes the full text of research papers, education content and clinical reviews published on thebmj.com and in the print version of The BMJ. This print edition is suitable for academic researchers. The academic issue does not include Careers advertising.

**The BMJ Academic edition features:**

- Monthly publication
- 150 pages per issue of award winning scholarly content — including original research, editorials, clinical reviews, analysis, research methods, and letters.
- Full text of research papers — rather than one page abstracts.
- State of the Art reviews — written by international experts, these in-depth, 5000 word articles offer the latest thinking on important areas of clinical medicine and academic enquiry.
- Truly international — removal of UK focused and magazine style content (such as obituaries, news, and personal views).
- Easy navigation between sections — front page contents list to make finding content quicker and easier.
- Enhanced production — glossy cover, high quality paper, and perfect bound for easy stacking and filing.

**What is the frequency of The BMJ Academic edition?**  
The BMJ Academic edition is published monthly in print.





2008 • PICO's

**Editors**  
**Innovations in publishing BMJ research**  
 2008; 337: doi:10.1136/bmj.337.7824.1171 (published 27 December 2008)  
 (See also: BMJ 2008;337:1171)

Dear Editor, I have just finished reading your article on the PROSPER study. It is a very interesting and well written paper. I am sure that it will be of great interest to your readers. I am sure that it will be of great interest to your readers. I am sure that it will be of great interest to your readers.

"We want print readers to notice and appreciate research articles but we know from regular surveys that readership of research in print is lower than for other sections of the journal and much lower than it is online..."

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**BMJ** PICO in print

Real world effectiveness of warfarin among ischaemic stroke patients with atrial fibrillation: observational analysis from Patient-Centred Research into Outcomes Stroke Patients Prefer and Effectiveness Research (PROSPER) study

**Full paper online (1/8 pages)**

Research question

Study design

Findings

Limitations

Implications

Funding and competing interests

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**BMJ PICO in print**

**Full paper online (1/8 pages)**

2013 • Video abstracts

**BMJ**

**BMJ**

2015

Structured abstracts



"Our new restructured abstracts combine the best features of traditional scientific abstracts with those of the PICO—while keeping to a 400 word count. The result is a shorter, more readable abstract that efficiently presents the main evidence from a study..."



Research question

Summary of methods

Study answer and limitation

What the study adds

Funding and competing interests



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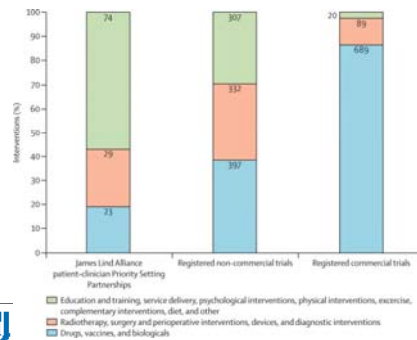
What the study adds

Funding and competing interests

# Patient Engagement



Do trials study what patients want ?

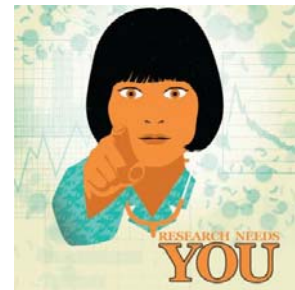


Experiment with patient reviews

- 2013: Patient partnership editor
- Dr. Tessa Richards has set up a patient panel
- All papers describing a RCT will also be reviewed by a patient



1. Ask authors of RESEARCH papers to explain how they involved patients in the design of their study



**Research**  
**Racial world effectiveness of warfarin among ischemic stroke patients with atrial fibrillation: observational analysis from Patient-Centered Research into Outcomes Stroke Patients Prefer and Effectiveness Research (PROSPER) study**  
 Hong Yan, Jingling Wu, David C Holmes, George Coumellis, George A O'Brien, Lisa M Schaeffer, Jonathan M Hill, Lisa J Smith, Robert L Taylor, James Hayward, William J Gattuso, Jonathan M Hill, Thomas A Brennan, Barbara L Gahr, Michael D Shapiro, Eric D Peterson, Martin Pechmann

... The identify the most relevant research topics and meaningful outcomes, we worked with our patient co-investigators and ... Knowledge gained... was reviewed by our patient co-investigators...



2. Encourage authors to coauthor papers with patients (particularly education papers)



**CLINICAL REVIEW**

**Diabetic ketoacidosis in adults**

**Box 4 Patients perspectives on DKA, from TweetChat**

"No one has ever explained it. I've educated myself but no idea when to go into hospital..."

"Considering it's such a major diabetic issue, it's shocking and scary how many people don't know what DKA actually is."

"When I was diagnosed, I was in hospital for three days. It was totally missed by my GP that I had T1..."

"It's horrible and still fills me with panic that I was so very close to death, GP misdiagnosed three times!"

"When I was diagnosed, impact on mental health was never considered!"

"Tape was drilled in and out of a cornea. Now I panic when I get 'high angles, would rather 'hope any day' leave for healthcare professionals to consider, from structured and unstructured discussions between patient contributors:


- DKA is a frightening experience. Consider the need to address patient fears and concerns during recovery.
- Take care to your initial observations with patients with DKA. Focusing on an immediate indicator rather than the person may impact on that person's future self management.
- Consider your behaviour and language when talking to someone with a new diagnosis of type 1 diabetes. Ensuring the patient gets positive messages about type 1 diabetes is critical, as is ensuring access to support.
- Provide advice about how to access further educational resources, including the importance of structured educational programmes.
- Ensure that the experience of DKA is not viewed as a failure of self care, and that a personalised care plan is in place to prevent further episodes.

**How patients were involved in the creation of this article**

We obtained patient perspectives on DKA through a live TweetChat on 10 July 2015. This was arranged and advertised by the Great Britain Diabetes Online Community (GBDOC, www.gbdoc.co.uk), which undertakes a weekly 'tweetchat' on issues relevant to people with diabetes (Box 4). We also incorporated opinions from unrelated patient contributors who had experienced DKA. These discussions led to the inclusion of a new section on letters for health professionals to consider.

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3. Ask patients to review research, editorial, analysis, and clinical education articles



4. Have patient voice in all BMJ committees that make strategy and content decisions

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**thebmj**

**What your patient is thinking**

Find out in our new series of patient-led articles

CPD/CME

**PRACTICE**

**and patient thinking**

**I chose reconstruction, but not to "look good"**

Miss G.D. tells a doctor of her experience of undergoing an elective breast reconstruction surgery for breast cancer and what she learned from the experience.

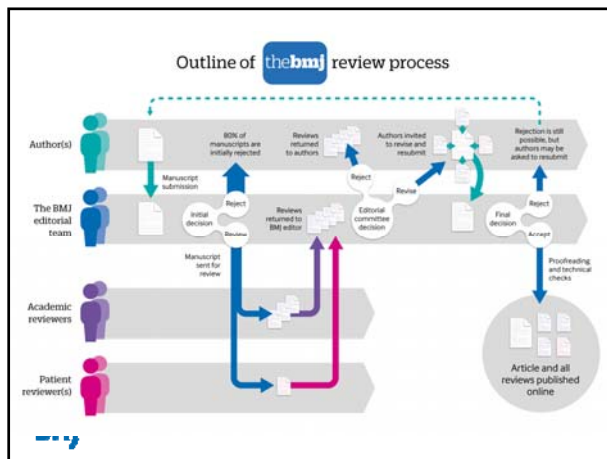
**Miss G.D.**

**What I chose**

**Language is important**

**Remember the body as well as the mind**

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**Thank You**

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 Twitter: [@WimWeber\\_BMJ](https://twitter.com/WimWeber_BMJ)

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**MiRoR** Methods in Research on Research

A presentation delivered at the first MiRoR training event  
 October 19-21, 2016  
 Ghent, Belgium



This project has received funding from the EU Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie Grant Agreement #676207

[www.mirror-ejd.eu](http://www.mirror-ejd.eu) @MirrorProject

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