

# Authorship & Peer Review in Science

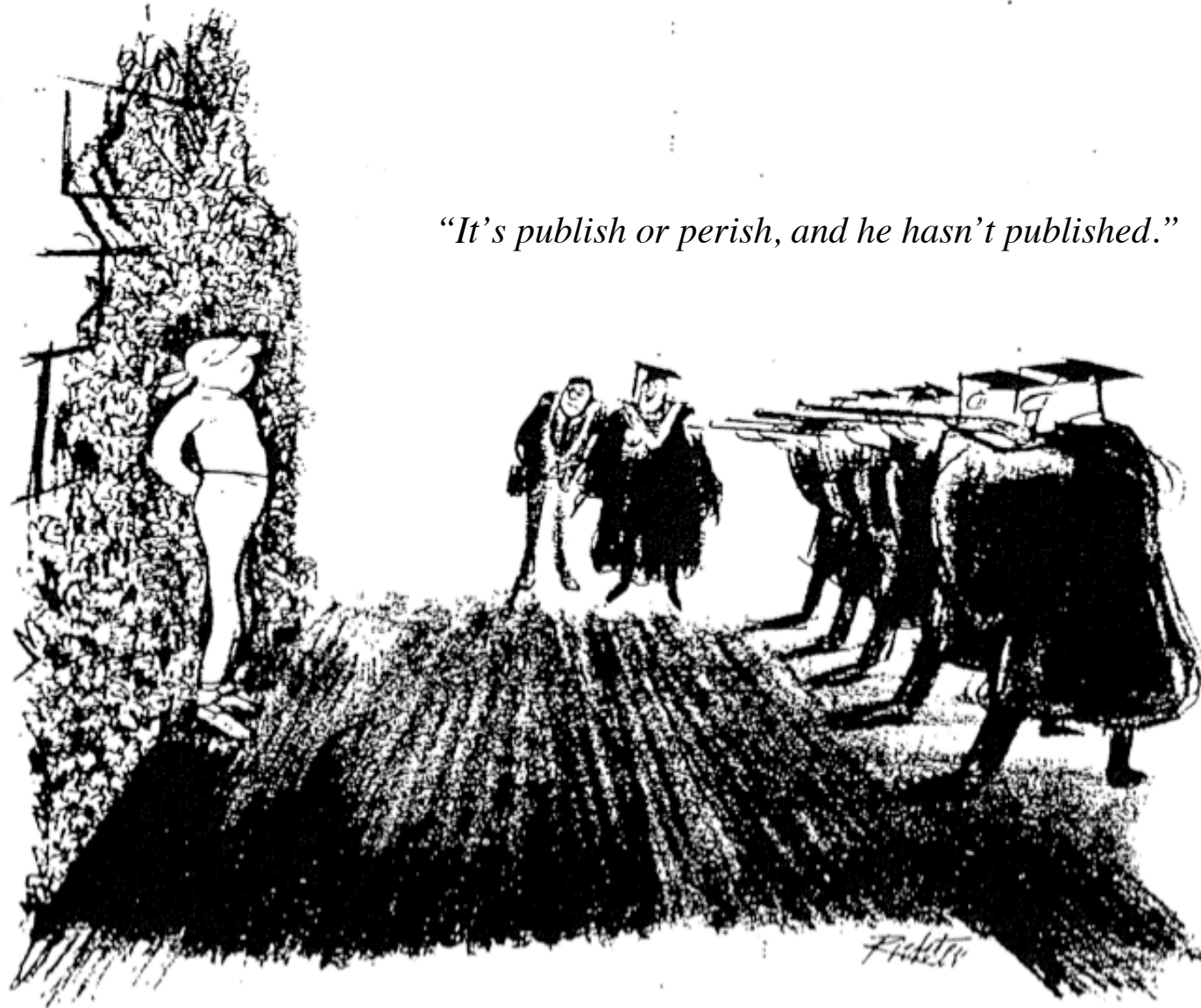
Jon F. Merz, MBA, JD, PhD  
Department of Medical Ethics  
University of Pennsylvania



# Overview

- Publication
- Authorship
- Peer Review

*"It's publish or perish, and he hasn't published."*



# Why do we publish?

- To share with others (scientists, public)
  - Condition of funders
  - Necessary for human subjects research
  - Facilitate replication/validation/extension
- To subject to critical review
- To establish reputation
  - Assert priority
  - Community recognition
  - Condition for promotion
- To teach

# Some problems in publishing

- Publication bias
  - The perception of scientists is that editors do not want to publish negative results, and therefore they do not write them up and submit them; the perception of editors is they do not receive papers containing merely negative findings
    - Merely duplicative or confirmatory results are not that interesting, but contradictory results are
    - See: The file drawer problem. Rosenthal R. Psychol Bull 1979; 86:638.
- Double publication
  - Same data, different outlets \*without acknowledgement of priority\*
  - Recent study suggests 2 to 3% of Medline articles may be duplicates (Errami & Garner, Nature 2008; 451:397), but these authors have no data on acknowledgments
  - In a survey of 3247 scientists, 4.7% admitted to “Publishing the same data or results in two or more publications” (Martinson et al. Nature 2005; 435:737), but again there’s no correction for acknowledgements

# Some more problems. . .

- Ownership of data and right to control publication
  - Cantekin case (JAMA 1990;263:1427-30; JAMA 1991; 266:3333-37)
- Industry sponsorship
  - Suppression of unfavorable research results
    - Synthroid & Betty Dong (JAMA 1997; 277:1238-43)
    - Flock workers & David Kern (Ann Intern Med 1998; 129: 341-44)
    - Apotex & Nancy Olivieri (New Engl J Med 2002; 347:1368-71)
- Human Subjects research
  - Imperative to publish!
  - Concerns over nonpublication and the need to account for negative results in systematic reviews/meta-analyses has led to public notice of trials <http://www.clinicaltrials.gov/> and ICJME requirements that trial registration is a necessary condition for publication
  - and GSK has led the way (after a lawsuit in NY) in setting up a clinical trials registry w/results <http://www.gsk-clinicalstudyregister.com/>

# Even more problems. . .

- Poor citation practices
  - Failure to give credit to those who went before
  - Undermines the *intellectual heritage* of the work
  - examples
- Plagiarism
  - Martinson *et alia* found some 1.4% of their sample admitting to this
- Authorship
  - Perhaps the most contentious issue scientists deal with on a day-to-day basis

# Authorship

- What is an author?

“Authorship credit should be based on

1) substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;

2) drafting the article or revising it critically for important intellectual content; and

3) final approval of the version to be published.

ICMJE, [http://www.icmje.org/ethical\\_1author.html](http://www.icmje.org/ethical_1author.html) (accessed 2/4/10)





***“Mr. Wilkins, I believe that your condition is going to get us both into the ‘Journal of the American Medical Association.’”***

# Some problems with authorship

- Disciplinary differences
  - In determining *who is an author*
  - In authorship *order*
- Immutable escalation in # of authors (in biomedicine)
  - Pressures to publish or perish
  - Perception of increased publication requirements for promotion
  - Greater volume of multi-institution and multidisciplinary research
  - Greater number of authors dilutes the contribution and responsibility of any one author

## *The Chronicle Review*

From the issue dated February 16, 2007



Carole Cable

"Things have become so hectic these days that I don't even have the time to read the articles for which I'm listed as first author."

# Some more problems. . .

- Games scientists play
  - Ghosts - writers who are not included as authors and are not acknowledged
  - Guests - gratuitous additions
  - Grafters - those who exact authorship in exchange for access to subjects, proprietary reagents or probes, funding, or the like  
(Rennie & Flannigan. JAMA 1994; 271:1904)
  - Abuse of power relationships
- The fundamental problem is that authorship does not readily convey who is truly responsible for the science
  - Everyone wants to take *credit* without necessarily accepting *responsibility* for the work

# What has been done to fix this?

- Greater oversight of authorship by journals
  - Many journals now require all authors to sign copyright assignments and statements of authorship
  - Some (e.g., JAMA) require signed agreements by those who are merely acknowledged
- Contributor statements
  - Open and explicit statements that detail what each author and acknowledgee did
  - Fair
  - Precise } May help assign authorship order
  - May discourage fraud

(Rennie, Yank & Emanuel. JAMA 1997; 278:579)

- Wide adoption by biomedical science journals

# Peer Review

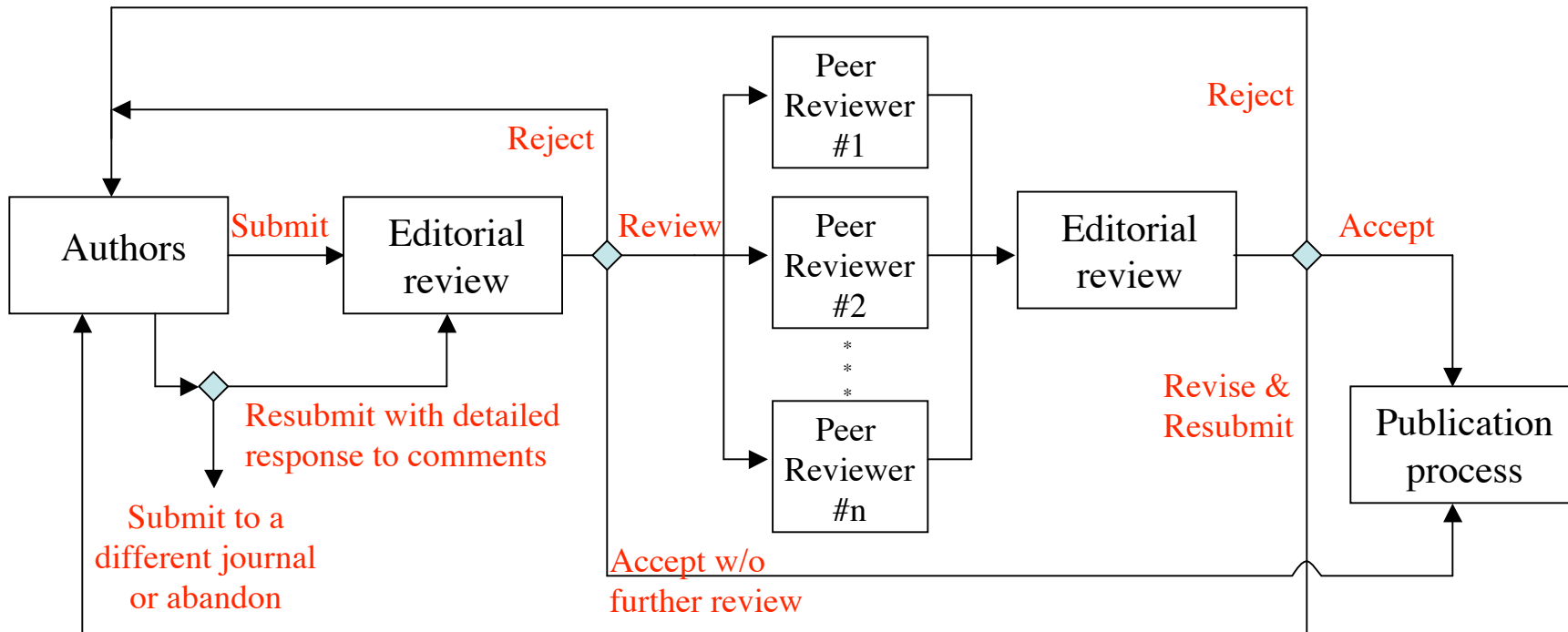
- Developed over the last 100 or so years in response to growing volume and specialization of scientific journals (Burnham JC. JAMA 1990; 263:1323)
- Purpose is to assess:
  - Importance of research question/relevance
  - Thoroughness of background/situated in literature
  - Data collection and analytic methods - are they appropriate?
  - Presentation/writing
  - Results and interpretations/conclusions reasonable?
- Goal of promoting innovation – cutting edge science – is in tension with the conservative nature of science

# Peer Review

- Kassirer & Campion summarized the view that peer review is “arbitrary, subjective, and secretive” (JAMA 1994;272:96)
  - Many will recite experiences getting both glowing and glowering reviews on the same manuscript
  - Subjectivity reflects different views, training and skills of reviewers
  - Opens the door to politics, power, and abuse
    - Robert Gallo case (see: J. Crewdson. Science Fictions: A Scientific Mystery, a Massive Cover-up and the Dark Legacy of Robert Gallo, Boston: Little Brown, 2002)
  - They note the lack of training for this scientific activity, saying its akin to the clinical “see one, do one, teach one” approach
- Many have observed that the standards reviewers apply to judging the quality of others’ works is much higher than they apply to their own work (see, e.g., JAMA 1990: 263:1330)







## An overview of the peer review process

- This is an iterative process and can be used as the editors see fit
- Refereeing of proposals has some similarities

# Peer review practicalities

- Unfunded mandate – a time consuming obligation of membership in the scientific community
  - Volume of requests varies greatly; tied to reputation, specialty
  - Time spent on a review also varies greatly
- Try to be objective
  - Avoid (and disclose if unavoidable) conflicts of interest (monetary, professional, intellectual)
- Peer reviewers merely provide advice – Editors have final say

# What is a peer review?

- In general, journal peer reviews have 2 parts:
  - Confidential communication to the editor
  - Communication to the author(s)
    - Generally blinded, but some journals permit or require P/R identification/signature
    - Should **NEVER** say what the recommendation for publication is
    - Typically has 3 parts:
      - Summary
      - General critique
      - Specific comments
- Proposal peer reviews are often more formulaic (e.g., NIH), and are not iterative (NIH now offers 1 chance to resubmit a rejected application; had been 2x in the past)

# Some Sources . . .

- Rockwell S. Ethics of Peer Review: A Guide for Manuscript Reviewers. (2005) (available at: <http://ori.dhhs.gov/education/products/yale/prethics.pdf>)
- JAMA and BMJ have organized 6 international conferences since 1986 on peer review, with select publication of papers. See theme issues at:
  - 1st: JAMA 1990; 263:1317-1441
  - 2nd: JAMA 1994; 272:91
  - 3rd: JAMA 1998; 280:203-306
  - 4th: JAMA 2002; 287:2759-2871
  - 5th: JAMA 2006: 295 (articles not collected in special issue)
  - 6th: held in Vancouver, Sept. 2009, see: <http://www.ama-assn.org/public/peer/peerhome.htm>