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WOMEN'S HOSPITAL

C E N T E R F O R



Faculty Development & Diversity

Sharing strategies. Supporting careers.

Impact Factor of Journals: What Is It & What Can It Do For You?

Dr. Helen Shields

Friday, December 19, 2014

12:00 – 1:00 PM



CFDD Monthly Flyer

Register for our programs
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Calendar:

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CFDD Highlights!

January 2015



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BWH Minority Faculty
Career Development
Awards
Deadline: February 17
[www.brighamandwomens.org/
CFDD/OMC/MFCDA](http://www.brighamandwomens.org/CFDD/OMC/MFCDA)

BWH Postdoc Association
Pub Night
January 14, 6:00-8:00pm
Bertucci's, Children's Hospital

Research Connection
LIVE Lunch
January 12, 12:00-1:00pm
Carrie Hall

All events are sponsored by:
Center for Faculty Development & Diversity (CFDD)
And its affiliated offices:
Office for Multicultural Faculty Careers (OMC)
Office for Research Careers (ORC)
Office for Women's Careers (OWC)
Contact Us:
BWHCFDD@partners.org
617-525-7646

OMC Residency Applicant Networking Reception
January 6 • 4:30–5:30pm • Miller Atrium, Shapiro 2nd floor

Writing for Publication:
Secrets to Successful Journal Club Presentations
January 9 • 12:00–1:00pm • Carrie Hall

Career Advancement Program for Scientists
Roundtable Guest: Dana Vuzman, PhD
January 13 • 12:00–1:30pm • HHMI Conf. Room, Thorn 11th floor

Managing Conflict in the Workplace (BWFH)
January 13 • 4:00–5:30pm • BWFH Atrium 1 & 2

Safety, Quality, & Well-Being: The Impact of Just Culture,
Peer Support, & Professionalism at BWHC
January 13 • 4:00–5:30pm • Carrie Hall

Demystifying Promotions: Choosing an Area of Excellence
For Instructors Preparing for Promotion to Assistant Professor
January 15 • 12:00–1:30pm • Shapiro Breakout Room

OWC Senior Faculty Career Development Roundtable
January 23 • 12:00–1:30pm • DOM Conference Room, OBC 3-32

Tax Information Seminar for Internationals
January 23 • 12:00–1:30pm • OBC 4002B

Delivering Effective Feedback
January 28 • 12:00–1:30pm • Shapiro Breakout Room



PLEASE REGISTER ONLINE:
www.brighamandwomens.org/calendar



BWH Faculty Career Development Awards

The Center for Faculty Development & Diversity and the Brigham Research Institute, with the support of the BWH President's Office, announce the

2015 Brigham and Women's Hospital Faculty Career Development Awards

Amount of Award: \$30,000 (three awards granted in 2015)

Eligibility:

- MD, PhD, or equivalent advanced degree
- Instructor or Assistant Professor at HMS
- Established interest in an academic career

**More information and online application available at:
www.brighamandwomens.org/CFDD/FCDA**

**Applications and Letter of Recommendation
due January 8, 2015**



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Impact Factor:

What is it?

What can it do for you?

Helen Shields, MD

Associate Chief, Division of Medical
Communications

Objectives:

1. Define impact factor and how it is calculated
2. Recognize that publishing in high impact journals could affect promotion possibilities
3. Examine the controversy surrounding impact factors and how they are used to rate the status of journals, researchers and promotions.

1. Which of the following statements about Impact Factor (fraction of numerator over denominator) is correct?

- A. Only Biology and Medicine journals are ranked**
- B. The Numerator is the number of citations in the current year to all articles published in the two prior years**
- C. The Denominator is the total number of items (eligible reviews and articles) published in the current year.**
- D. The Impact Factor has three key elements, the Numerator, the Denominator and last year's total number of review and original articles**

2. Which of the following people described the Impact Factor?

- A. Eugene Garfield, Ph.D., of Thomson Scientific, Philadelphia**
- B. Franz Ingelfinger, M.D., Editor of the New England Journal of Medicine (1970's)**
- C. Robert Petersdorf, M.D. Chairman of the Association of American Medical Colleges**
- D. Mary Ellen Avery, M.D., Physician-in-Chief of Children's Hospital, Boston**

3. What journal currently has the highest impact factor in the world?

A. Nature

B. Science

***C. New England Journal of
Medicine***

D. JAMA

4. In 2009, the Impact Factor was recommended as a measure of a faculty member's

- A. Stature in the Academic Community**
- B. Likelihood to win a grant**
- C. Readiness for promotion**
- D. Productivity**

5. Which of the following may falsely inflate the Impact Factor upward for a particular journal?

- A. Citing laboratory colleagues' work**
- B. Citing your own journal articles in subsequent publications**
- C. Having influential friends at the Science Citation Index**
- D. A single article that is rarely cited in a journal**

Definition of Impact Factor

- The Impact Factor is the simple ratio between citations in the current year to the past 2 years (Numerator) divided by the recent source items (reviews and original articles) (Denominator) published in the past 2 years.

**28,696 citations in 2004 to articles
published in 2002+2003 in NEJM**

**744 total NEJM articles published
in 2002+2003**

= 38.59
(Impact Factor
For NEJM, 2004)

Definition of Impact Factor

- The Impact Factor is used for ranking, evaluating, categorizing and comparing journals.
- Eugene Garfield, Ph.D. who described the Impact Factor has done a great deal of work to provide objective measures of the impact of various journals. ***“When a physician ... cites a journal article, it indicates that the cited journal has influenced him or her in some manner. The more frequently that a journal is cited, the more often the worldwide medical community indicates that journal’s influence or impact.”***

Garfield E. Which Medical Journals Have the Greatest Impact?
Ann Intern Med. 1986; 105: 313-320.

Spectrum of Medical Journals' Impact Factors for 2014

Rank	Title	Impact Factor
1	NEW ENGL J MED	54.42
2	LANCET	39.207
3	JAMA-J AM MED ASSOC	30.387
4	BMJ-BRIT MED J	16.378
5	ANN INTERN MED	16.104
6	PLOS MED	14
7	ARCH INTERN MED	13.246
8	J CACHEXIA SARCOPENI	7.413
9	BMC MED	7.276
10	COCHRANE DB SYST REV	5.939

<http://impactfactor.weebly.com/medicine.html>

History and Meaning of Journal Impact Factor

- Impact factor was created to be able to identify smaller journals with articles that were heavily cited and include these journals in the *Science Citation Index*
- Editorials, Letters Commentaries and Perspectives are not considered substantive and are **not** included in the denominator. However, they may be cited in the next two years and the numerator will include citations to these. Therefore, some distortion will occur in the Impact Factor in these leading medical journals.
- **Term “Impact Factor” evolved to mean both journal impact and author impact**

Qualities of High Impact Factor Journals

- 1. More difficult to have an article accepted**
- 2. Higher quality systematic reviews**
- 3. Publication bias* is underreported**

*Publication Bias refers to the phenomenon whereby statistically significant positive results are more likely to be published, published earlier, published in English and published in high impact journals compared to non-significant results.

1. Fleming PS, Koletsi D, Seehra J, et al. Systematic reviews published in higher impact clinical journals were of higher quality. *J Clin. Epidemiol.* 2014; 67: 754-759.
2. Onishi A, Furukawa TA. Publication bias is underreported in systematic reviews published in high-impact-factor journals: metaepidemiologic study. *J Clin. Epidemiol.* 2014; 67: 1320-1326.

Impact Factor Distortions

- 2012 Meeting of American Society for Cell Biology produced **San Francisco Declaration on Research Assessment (DORA)**
- This document signed by 150 leading scientists aims to **stop the use of “journal impact factor” in judging an individual scientist’s work.**
- Impact Factor must not be used as a “surrogate” measure of the quality of individual research articles
- Scientists are being ranked by weighting each of their publications according to the impact factor of the journal in which it appeared.
- **Impact Factor should not be used in hiring, promotion or funding decisions**

“Me-Too” Science Is Encouraged by Misuse of the Impact Factor

- Ground Breaking Science takes years to come up with and publish a new approach.
- No publications for several years is difficult for a career trajectory
- Also innovation in new areas sparsely populated by scientists who can reference your work is discouraged

Impact Factor Distortions: Bottom Line

“Leaders of the scientific enterprise must accept full responsibility for thoughtfully analyzing the scientific contributions of other researchers. To do so in a meaningful way requires the actual reading of a small selected set of each researcher’s publications, a task that must not be passed by default to journal editors.”

Impact Factor Summary Points

- 1. Definition:** Numerator is the number of citations; denominator is the number of articles published in prior 2 years
- 2. High Impact Factor journals** are more difficult to publish in, but have higher quality reviews. Consider offering a review article to one of these journals if an original article seems beyond reach.
- 3. Some in academic circles warn against** using the Impact Factor as a **measure of a faculty member's productivity and/or scientific stature**



Bruce Alberts is Editor-in-Chief of *Science*.

Impact Factor Distortions

THIS EDITORIAL COINCIDES WITH THE RELEASE OF THE *SAN FRANCISCO DECLARATION ON RESEARCH ASSESSMENT* (DORA), the outcome of a gathering of concerned scientists at the December 2012 meeting of the American Society for Cell Biology.* To correct distortions in the evaluation of scientific research, DORA aims to stop the use of the “journal impact factor” in judging an individual scientist’s work. The *Declaration* states that the impact factor must not be used as “a surrogate measure of the quality of individual research articles, to assess an individual scientist’s contributions, or in hiring, promotion, or funding decisions.” DORA also provides a list of specific actions, targeted at improving the way scientific publications are assessed, to be taken by funding agencies, institutions, publishers, researchers, and the organizations that supply metrics. These recommendations have thus far been endorsed by more than 150 leading scientists and 75 scientific organizations, including the American Association for the Advancement of Science (the publisher of *Science*). Here are some reasons why:

The impact factor, a number calculated annually for each scientific journal based on the average number of times its articles have been referenced in other articles, was never intended to be used to evaluate individual scientists, but rather as a measure of journal quality. However, it has been increasingly misused in this way, with scientists now being ranked by weighting each of their publications according to the impact factor of the journal in which it appeared. For this reason, I have seen curricula vitae in which a scientist annotates each of his or her publications with its journal impact factor listed to three significant decimal places (for example, 11.345). And in some nations, publication in a journal with an impact factor below 5.0 is officially of zero value. As frequently pointed out by leading scientists, this impact factor mania makes no sense.†

The misuse of the journal impact factor is highly destructive, inviting a gaming of the metric that can bias journals against publishing important papers in fields (such as social sciences and ecology) that are much less cited than others (such as biomedicine). And it wastes the time of scientists by overloading highly cited journals such as *Science* with inappropriate submissions from researchers who are desperate to gain points from their evaluators.‡

But perhaps the most destructive result of any automated scoring of a researcher’s quality is the “me-too science” that it encourages. Any evaluation system in which the mere number of a researcher’s publications increases his or her score creates a strong disincentive to pursue risky and potentially groundbreaking work, because it takes years to create a new approach in a new experimental context, during which no publications should be expected. Such metrics further block innovation because they encourage scientists to work in areas of science that are already highly populated, as it is only in these fields that large numbers of scientists can be expected to reference one’s work, no matter how outstanding. Thus, for example, in my own field of cell biology, new tools now allow powerful approaches to understanding how a large single-celled organism such as the ciliate *Stentor* can precisely pattern its surface, creating organlike features that are presently associated only with multicellular organisms.§ The answers are likely to bring new insights into how all cells operate, including our own. But only the very bravest of young scientists can be expected to venture into such a poorly populated research area, unless automated numerical evaluations of individuals are eliminated.

The DORA recommendations are critical for keeping science healthy. As a bottom line, the leaders of the scientific enterprise must accept full responsibility for thoughtfully analyzing the scientific contributions of other researchers. To do so in a meaningful way requires the actual reading of a small selected set of each researcher’s publications, a task that must not be passed by default to journal editors.

—Bruce Alberts

10.1126/science.1240319

*www.ascb.org/SFdeclaration.html. †K. Simons, *Science* **322**, 165 (2008). ‡B. Alberts, B. Hanson, K. L. Kelner, *Science* **321**, 15 (2008). §For example, see M. Kirschner, J. Gerhart, T. Mitchison, *Cell* **100**, 79 (2000).



The New England Journal's Impact Factor

Courtesy of Jeffrey Drazen, M.D.
Editor-in-Chief
The New England Journal

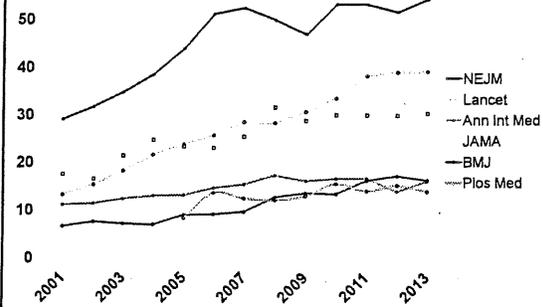
Calculation

Citations in 2013 to articles published in:	
2011	18,018
2012	20,566
Total = 38,584	

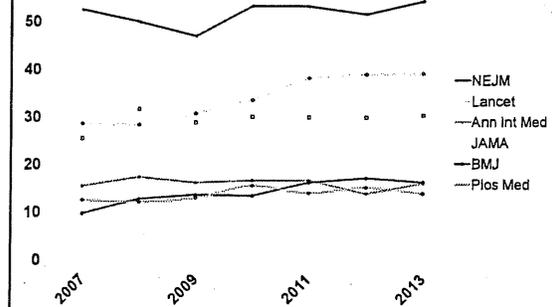
Citable items published in:	
2011	349
2012	360
Total = 709	

$$2012 \text{ Impact Factor} = \frac{38,584}{709} = 54.420$$

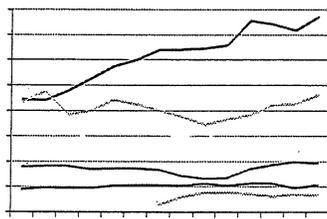
Impact Factors



Impact Factors



Total Citations to Two Previous Years



Total Citations to Two Previous Years

