

## ANALYSIS OF THE IMPACT FACTOR FOR CARDIOVASCULAR PATHOLOGY

Cardiovascular Pathology (CVP) is a bimonthly journal sponsored by the Society for Cardiovascular Pathology and published by Elsevier.

In recent years, the numbers of manuscripts accepted and submitted to CVP are as follows: 92/206 (44.7%) in 2007, 81/257 (31.5%) in 2008, 73/260 (28.0%) in 2009, 84/266 (31.6%) in 2010 and 55/238 (23.1%) in 2011.

The standard Impact Factor (IF) is calculated by dividing the number of current citations a journal receives to articles published in the two previous years by the number of articles published in those same years. IFs are calculated annually for journals indexed in Journal Citation Reports, and they are published by Thompson Reuters (previously by the Institute of Scientific Information – ISI).

The two year IF is the most prominent but not the only journal metric. Others include the 5 year Impact Factor (IF5), Eigenfactor, SJR (SCImago Journal Rank), SNIP (Source Normalized Impact per Paper) and the h-index (quality and quantity of career publications).

The 2010 IF for CVP was 1.881 (based on citations of articles published in 2008 and 2009/articles published in 2008 and 2009) and the 2011 IF for CVP was 2.066 (based on citations of articles published in 2009 and 2010/articles published in 2009 and 2010). The 2011 IF represents a 10% increase and the first time CVP has an IF over 2.0.

However, journal size has a significant impact on annual change in IF. For journals with annual publication of 35-69 papers, the annual mean change in IF is plus/minus 35% compared to journals with annual publication of over 150 articles with an annual mean change in IF of plus/minus 18%.

Other factors with major effects on IF include subject area, number of authors per manuscript (which varies by subject area), article type (letter, full paper, review) and journal type.

In the analysis by Amin and Mabe, the relationship of subject area to mean IF is as follows:

Fundamental Life Sciences	3.1
Neurosciences	2.3
Clinical Medicine	1.7
Pharmacology and Toxicology	1.6

In the analysis of Matthew Richardson, the relationship of subject area to mean IF is as follows:

Multidisciplinary	5.7
Biochemistry, Genetics & Molecular Biology	3.4
Neuroscience	3.3
Immunology & Microbiology	3.2
Chemistry	2.4
Pharmacology & Toxicology	2.4
Medicine	2.4

The 2011 Impact Factors for pathology journals published by Elsevier are as follows:

The American Journal of Pathology	4.890
The Journal of Molecular Diagnostics	3.576
Human Pathology	2.876
Experimental and Toxicologic Pathology	2.781
Experimental and Molecular Pathology	2.425
Cardiovascular Pathology	2.066
Journal of Comparative Pathology	1.647
Seminars in Diagnostic Pathology	1.262
Pathology – Research and Practice	1.213
Annals of Diagnostic Pathology	0.875

Matthew Richardson presented data in support of the conclusion that the IF of a journal cannot be relied upon to judge the quality of an individual piece of published research since 18% of articles are responsible for 50% of the citations to a given journal and 50% of the articles are responsible for 85% of the citations to that journal. The more the cumulative citations, the higher the IF for that journal. (Reference – Seglen PO. Why the impact factor of journals should not be used for evaluation of research. *BMJ* 1997;314(7049):498-502.)

Conclusions:

- 1) Caution is needed to avoid overinterpretation of annual changes in IF, especially for a small bimonthly subspecialty journal such as CVP.
- 2) The IF for CVP is competitive with other niche pathology journals.
- 3) The IF for CVP is also competitive with other journals within the broader scope of medicine/clinical medicine.
- 4) Advancement of CVP requires continued commitment to quality and excellence.

#### REFERENCES

Amin M, Mabe M. Impact factors: use and abuse. *Perspectives in Publishing*, No. 1. October 2000. Reissued with minor revisions October 2007. Elsevier.

The Impact Factor and other bibliometric indicators: What every editor should know. Presentation by: Matthew Richardson, Publishing Information Executive, Scientometrics and Marketing Analysis, Research, Academic Relations, Elsevier. Presented at: Elsevier Editors' Conference, Boston, October 6 & 7, 2012.

Prepared (October 17, 2012) by:

L. Maximilian Buja, M.D.

Editor-in-Chief, Cardiovascular Pathology

Professor of Pathology and Laboratory Medicine, The University of Texas Health Science Center at Houston (UTHealth)