

Editorial

Top of the charts: Download versus citations in the
International Journal of Cardiology

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Abstract

The medical literature is growing at an alarming rate. Research assessment exercises, research quality frameworks, league tables and the like have attempted to quantify the volume, quality and impact of research. Yet the established measures (such as citation rates) are being challenged by the sheer number of journals, variability in the “gold standard” of peer-review and the emergence of open-source or web-based journals. In the last few years, we have seen a growth in downloads to individual journal articles that now easily exceeds formal journal subscriptions. We have recorded the 10 top cited articles over a 12-month period and compared them to the 10 most popular articles being downloaded over the same time period. The citation-based listing included basic and applied, observational and interventional original research reports. For downloaded articles, which have shown a dramatic increase for the International Journal of Cardiology from 48,000 in 2002 to 120,000 in 2003 to 200,000 in 2004, the most popular articles over the same period are very different and are dominated by up-to-date reviews of either cutting-edge topics (such as the potential of stem cells) or of the management of rare or unusual conditions. There is no overlap between the two lists despite covering exactly the same 12-month period and using measures of peer esteem. Perhaps the time has come to look at the usage of articles rather than, or in addition to, their referencing.

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The medical literature is growing at an alarming rate; alarming because of the complexity of keeping abreast of changes and new evidence. Encouraging in what it means for the advance of medical science and the standards of care, but also worrying if we cannot develop IT systems to provide the necessary data to practitioners when and how they need it, and in a form that is relevant, intelligible, accessible and timely. Gone are the days when it is adequate to attend the occasional seminar, subscribe to one or two journals or even pick things up by osmosis. In the modern era we are all assailed by the sheer profusion of data, unable to sort out what is relevant and what is valuable from the huge background clutter of information. At the same time, as the clinician is looking for devices to assist in sorting through this information explosion,

universities and governments are grappling with ways to measure the effectiveness of the research they do or sponsor. Research assessment exercises, research quality frameworks, league tables and the like attempt to quantify the volume, quality and impact of research, and medical research is at the forefront of this. Yet the established measures (such as publishing in a few selected “quality” journals) is being challenged by the sheer number of journals, the variability of the “gold standard” of peer-review and the emergence of open-source or web-based journals. Even the way we read is changing. We no longer receive a hard copy journal or walk into a library but increasingly log-on, download or browse or use a search engine to seek article based on key words or specific text strings. We then may see and download an article from a journal we have never heard of, let alone subscribed to. Can we depend on the way we used to do things? In the last few years we have seen a growth in downloads to

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individual journals that is now easily exceeding formal journal subscriptions and which may have a completely different profile of readership compared to citations. An author may be tempted to cite the article a referee may expect rather than the paper the author really needs to read or depend on. We will therefore from now on be publishing and comparing the most cited articles with the most downloaded articles to compare the popularity of both and the subject areas chosen for each. If citation is a marker of prestige and impact and downloads mean people are willing to pay to read the work the two should be highly correlated. If they differ substantially it should lead us to question our historical metrics of quality and relevance.

We start this month by recording the 10 top cited articles from the relevant 12-month period in the year preceding the article. We will also list the 10 most popular articles being downloaded over the same time period. We hope it will make interesting reading.

For conventional citations the following table lists the top 10 articles and their topics.

1. Basic pharmacology of statins [1]
2. Clinical observational study of anaemia in heart failure [2]
3. Basic experiments on gene transfer vectors [3]
4. Clinical observational study in chronic heart failure using natriuretic peptides [4]
5. Paediatric cardiology: mechanisms of crib death [5]
6. Clinical interventional study in acute coronary syndromes — statin effect on metalloproteinases [6]
7. Clinical observational study in acute coronary syndromes — inflammatory markers [7]
8. Clinical pharmacology — atherosclerosis [8]
9. Clinical observational study — anaemia in heart failure [9]
10. Mechanistic study in ischaemic cardiomyopathy [10].

These show the varied subject matter of our journal but also show familiar interest in topics of original research be they basic or applied, observational or interventional. For downloaded articles the reader has specifically asked to access a specific article. This may be for distinctly different reasons. As we have previously documented on-line requests have shown a dramatic increase with annual downloads for the International Journal of Cardiology going from 48,000 in 2002 to 120,000 in 2003 to 200,000 in 2004 [11]. They now dominate the statistics of interest in an article, and may measure quite different characteristics to citations. In terms of downloads the most popular articles over the same period is given below:

1. The potential of stem cell therapy [12]
2. The potential of stem cell therapy in myocardial repair [13]
3. The potential of stem cell therapy in myocardial repair [14]

4. The potential of stem cell therapy in myocardial repair [15]
5. The potential of stem cell therapy in myocardial repair [16]
6. Clinical trial meta-analysis [17]
7. Non-pharmacological therapy — meditation [18]
8. Clinical pharmacology of torsade de pointes [19]
9. Review of torsade de pointes [20]
10. Review treatment of idiopathic pulmonary artery hypertension [21].

What is surprising is that there is no overlap between the two lists at all, despite covering exactly the same 12-month period and both being peer driven. The citations favour original research reports, albeit from a wide range of topics, whereas the downloads are dominated by up-to-date reviews of either cutting-edge topics (such as the potential of stem cells) or of the management of rare or unusual conditions, where a more educative role may be inferred. Perhaps we need to keep track of both types of impact. We will keep a note of these tendencies in the months to come.

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