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New metrics to meet new challenges

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To the Editor,

As a researcher interested in the field of bibliometrics, I came across the recently published *Atherosclerosis* editorial [1], which highlights the editorial strategy designed to make the journal one of the main publications in its field. As the authors state, a journal with a high impact factor will attract more submissions as it is considered more prestigious. However, many members of the research community are considering alternative metrics to evaluate journals where to submit their manuscripts, following the guidelines set five years ago at the San Francisco Declaration on Research Assessment, also known as DORA [2]. Therefore, I would like to complement the information provided in the editorial, as focusing mainly on the impact factor undervalues the journal.

Researchers should bring attention to the fact that this journal is currently indexed by two global citation databases, Web of Science, and Scopus. These databases not only endorse the quality of a journal, but also increase its visibility. Every year, the Journal Citation Reports generates a list of journals, indexed by Web of Science, which are sorted by their impact factor for each of its subject categories. Likewise, SCImago [3] generates annually a list of journals, indexed by Scopus, that are sorted by their SCImago journal rank (SJR) for each of its subject categories. In each of the cases, a list commonly known as the quartile rankings is created. Thus, the first quartiles represent the top 25% of the impact factor distribution for a specific subject category, the second quartile between the top 25% and 50%, the third quartile between the top 50% and 75%, and the fourth quartile the bottom 25% of the list. Hence, according to data from Journal Citation Reports, *Atherosclerosis* is categorized as first quartile (Q1) in the “Peripheral Vascular Disease” subject category and as second quartile (Q2) in the “Cardiac and Cardiovascular Systems” subject category. Conversely, SCImago categorizes this journal as Q1 in the “Cardiology and Cardiovascular Medicine” subject category. Quartiles are useful because they are significantly less affected by a major problem of the impact factor, which is skewed citation distribution [4]. In other words, while a small set of articles receive a high number of citations, the majority of the articles receive few or none.

But let's establish other journals' attributes using data extracted from Scopus for the documents published by *Atherosclerosis* from 2012 to 2016. I sorted the citing journals by the total number of articles cited and established to which quartile each of them belonged, according to their SJR 2016. As Table 1 shows, the majority of the journals belong to the first quartile, fact that corroborates the quality of the research being published by *Atherosclerosis*.

As the editorial also mentions, 35% of the manuscripts accepted by *Atherosclerosis* are from Western Europe, 33% from Asia and 18% from North America. Even though this information is relevant to readers as it confirms the international visibility of the journal, from our perspective, more information could be extracted. A closer look into the affiliations registered by the authors that published documents during the 5-year period revealed that the top five institutional contributors were Isfahan University of Medical Sciences (Iran), followed by the Institut National De La Santé Et De La Recherche Médicale (France), Harvard Medical School (United States), VA Medical Center (United States) and Brigham and Women's Hospital (United States).

So, who is using the research published in *Atherosclerosis* as a source of information for their own research? As Table 2 shows, these researchers belong to prestigious institutions from different parts of the world that have a high degree of institutional collaboration. This information is relevant to academics interested in communicating their research to a wider audience.

I have presented a glimpse of alternative metrics that could be used to inform the readers of this journal about the benefits of publishing their manuscripts here. Perhaps it is time to begin using more meaningful and easier-to-understand metrics.

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Table 1
Ranking of the top-10 journals citing articles published by *Atherosclerosis*, based on the total number of cited articles per year. Quartile distribution was estimated using the SJR2016.

2012	2013	2014	2015	2016
Plos One (Q1)	Plos One (Q1)	Plos One (Q1)	Plos One (Q1)	Plos One (Q1)
Atherosclerosis (Q1)	Atherosclerosis (Q1)	Atherosclerosis (Q1)	Atherosclerosis (Q1)	Atherosclerosis (Q1)
Arteriosclerosis Thrombosis And Vascular Biology (Q1)	International Journal Of Cardiology (Q1)	Arteriosclerosis Thrombosis And Vascular Biology (Q1)	International Journal Of Cardiology (Q1)	Scientific Reports (Q1)
Journal Of Atherosclerosis And Thrombosis (Q1)	Arteriosclerosis Thrombosis And Vascular Biology (Q1)	International Journal Of Cardiology (Q1)	International Journal Of Clinical And Experimental Medicine (Q2)	International Journal Of Cardiology (Q1)
Journal Of Lipid Research (Q1)	Journal Of Lipid Research (Q1)	Biomed Research International (Q2)	Arteriosclerosis Thrombosis And Vascular Biology (Q1)	Journal Of Atherosclerosis And Thrombosis (Q1)
International Journal Of Cardiology (Q1)	Current Pharmaceutical Design (Q1)	Journal Of Atherosclerosis And Thrombosis (Q1)	Scientific Reports (Q1)	Medicine United States (Q2)
Lipids In Health And Disease (Q2)	Journal Of The American College Of Cardiology (Q1)	Lipids In Health And Disease (Q2)	Journal Of Atherosclerosis And Thrombosis (Q1)	Arteriosclerosis Thrombosis And Vascular Biology (Q1)
American Journal of Cardiology (Q1)	Diabetes Care (Q1)	Current Pharmaceutical Design (Q1)	Biomed Research International (Q2)	Journal Of Clinical Lipidology (Q1)
Circulation (Q1)	Journal Of Atherosclerosis And Thrombosis (Q1)	Experimental And Clinical Cardiology (Q3)	International Journal Of Molecular Sciences (Q1)	International Journal Of Clinical And Experimental Medicine (Q2)
Circulation Journal (Q1)	Cardiovascular Diabetology (Q1)	Cardiovascular Diabetology (Q1)	Medicine United States (Q2)	Journal Of The American Heart Association (Q1)

Table 2
Ranking of the top-10 institutions to which citing authors belong to.

#	Affiliation	Country	N° documents
1	Institut National De La Santé Et De La Recherche Médicale	France	1480
2	Harvard Medical School	United States of America	1416
3	VA Medical Center	United States of America	1258
4	Brigham and Women's Hospital	United States of America	997
5	Universidade de Sao Paulo	Brazil	855
6	Karolinska Institutet	Sweden	759
7	University College London	United Kingdom	759
8	The Ministry of Education	China	687
9	National Institutes Of Health	United States of America	681
10	University of Washington	United States of America	678

Conflict of interest

The author declared he does not have anything to disclose regarding conflict of interest with respect to this manuscript.

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