What does the future hold for Cardiovascular Research?

In the recent two decades, Cardiovascular Research has grown into a leading journal in the cardiovascular field. Strong leadership and regular renewal have boosted this growth. It is therefore with pride and not without some trepidation that we take over the editorial leadership. Michael Piper, David Garcia-Dorado and their team hand over a thriving journal. In their decade of leadership the journal has gone through significant transformation and has positioned itself as the basic science flagship of the European Society of Cardiology (ESC). The editors and their team have emphasized quality and impact of the published manuscripts and introduced active debate on ethics in science and publishing. They challenge the new editors to take it further forward in times that are likely to see major changes. What awaits us? To answer this we take a closer look at the nature of scientific publishing, the current (com)motions surrounding it, and the expectations of stakeholders.

1. Scientific publishing and metrics

‘Publish or perish’ has taken on a negative connotation by essentially referring to pressure on scientists to produce a tangible and measurable output from their work and the money invested in them. However, in its purest sense, it reflects the necessity to share results within the scientific community and open the data for scrutiny, to be built on, criticized or refuted. Putting novel data in the public domain is an essential step in research to advance the field, justify public spending, and recognize researchers and their work. Science and research ‘perish’ without a reliable and solid publication platform.

This puts demands on editors from different stakeholders. For authors the publication channel should ensure their work is read by their peers and used, as reflected in citations by colleagues, and, in the current climate, publications are a means to ‘gather points’ in the increasing quantification of research output. Readers in the scientific community want the material to be reliable, of high quality, novel, and relevant. Journals and their related media are in addition a source of broader education and scientific news, including policy and funding. More ‘hidden’ stakeholders, but not less real, are the owners of the journal, which might be a scientific society or publishing company. They are looking for a flagship for their activities and often for a financial asset as well.

All of this has led to increasing attention to quantitative indices that might reflect the quality of a journal, and by extension, of the papers and the scientists behind them. Much has been written about these indices and in particular about the primary index, the impact factor (IF), as eloquently illustrated by Figure 1, taken from a journal dedicated to the metrics of science. The graph shows the annual number of documents retrieved (open circles) about the IF starting shortly after its introduction in 1993. As time progresses, comments that are critical about the IF grow in number (triangles). Awareness about the limitations of the IF as a single metric is increasing but will not take away the craving for quantification by all stakeholders. Cardiovascular Research participates actively in this ongoing debate about quantification and in the coming months will provide more data and comments. The journal will not be steered by a single metric, but the editors will highlight the different analyses that are available to gain insight into the overall impact of the journal and how they can guide policy.

Metrics and quantitative analysis can also be used as a means to gain a broader insight into the field, comparing behaviour across fields and subdomains, and to analyse trends. Figure 2 shows the time course of the average IF s of the nine leading journals in the domain of cardiovascular research since 2003, five with a clinical profile and four with a basic science profile. The IF ranges from 3 to 11 with a comparable mean value in both groups. Over the years, however, a clear divergence occurs.

It is tempting to speculate about possible reasons. A growth in IF in the clinical journals may reflect the increasing influence of guidelines in the environment of evidence-based medicine. The lack of growth in the basic science journals may simply reflect stability in the...
overall activity and size of the community, but may also result from stagnation in funding or from mobility in the choice of journals. Outliers in this pattern occur and may reflect a true emerging field, and some deviations may be temporary or related to editorial policies, skewing the data. These issues deserve further study. It is the intention of the editors to actively participate in and communicate about such studies and to be a voice for related policy debates.

2. Identity and focus

A question that also arises from the figure above is whether it is justified or desirable to make the clear distinction between ‘basic’ and ‘clinical’ journals in a time that we need more collaboration to enhance translational research and medicine. The increasing complexity of studies in cell and systems biology and the associated methodology, as well as the increasing stringency in clinical studies and the demands on clinical practice, have led to highly specialized scientists. Several studies have emphasized the need for multidisciplinary and integrated bench-bedside-bench approaches to enhance translation to the benefit of patients and health care and to increase the return on investment in research. All of this requires cross-talk and exchange between ‘basic’ and ‘clinical’ research and researchers, not separatism. The recently established Journal of Translational Medicine analysed publications in the cardiovascular field in a systems biology approach, establishing connections between journals and domains, as illustrated in Figure 3. These results indicate that

Figure 2 Mean IF calculated from ISI Journal Citation Reports. The selection is based on the journals that were in the top ranking in 2003 with IF >3. Basic research: Circulation Research, Cardiovascular Research, Journal of Molecular and Cellular Cardiology, American Journal of Physiology Heart. Clinical research: Circulation, Journal of the American College of Cardiology, European Heart Journal, American Heart Journal, Heart.

Figure 3 Journal-to-journal intercitation network. Each node represents a specific journal, with Cardiovascular Research located in the square. The size of the node indicates the prominence of the journal in the literature (specifically, number of articles published in 2009). See Jones et al. for more information (reproduced with permission from Jones et al.).
journals do ‘cluster’ but also clearly illustrate the cross-over and mutual influence. The many connections radiating from journals at central points, including *Cardiovascular Research*, highlight the impact of these journals through a clear identity, i.e. within a cluster, and through offering the content of relevance to many domains. *Cardiovascular Research* will keep its core identity but will reach out into the translational area to include proof-of-concept studies and the translation into novel drugs and medicine. The ESC through its family of journals further has the potential for a concerted and complementary approach.

3. Publication media: paper, online, open access?

To reach the broad community, electronic publishing clearly has the lead, and whether we should stop paper publishing may soon become a debate about ‘when’ rather than ‘whether’. The question is, however, more complex. Several factors are at play, including economic issues and accessibility. The ‘online only’ format makes the publishing business accessible for novel players who may enter the market for profit, and there is an explosion of new journals across all fields. Electronic publishing takes away limitations on the volume of manuscripts that can be published and may offer a way to increase the amount of data available to the community. Journals that have traditionally a large volume were recently highlighted for their influence on the field, despite not having the highest IFs.5 Increasing access to data and the possibility to generate an online debate have been major factors driving the first open-access journals such as Biomed Central and more recently the PLoS journals, which have seen an amazing growth. In the field of cardiovascular research this is just emerging, and it will be the major topic in a forthcoming workshop of all ESC journals. The pressure for open access by public funding agencies such as the US National Institutes of Health and the European Community will further speed up the debate on its implementation.

4. Aspirations of the new editorial team

The vision for the journal is to increase its impact in the community, providing high-quality content in an attractive package for readers, serving authors through a structured, transparent, and high-quality review process. We intend to keep the review time short and to provide clear structured reports. The journal will increase supporting services such as for graphics and illustrations. We will further move towards new media of communication.

The journal will seek out new areas and new communities in cardiovascular research, introducing them through short reviews, and editorial contributions. The focus will be on basic and translational research, across different disciplines and areas, enhancing insight in cardiovascular disease and the perspective for innovation. The thematic Spotlight issues will remain a feature of the journal. In a ‘News and views’ section we will present relevant issues in science and debates in policy and funding.

Manuscript handling will remain at the central Leuven editorial office, but a network of associate editors at large will ensure expert handling in different areas. The editorial board brings together established investigators and younger scientists to support a continued quality of review. Consulting editors will provide expert input to the editors and handle-specific manuscripts.

Our aspirations may not all come true immediately: the first issue illustrates a first modest step towards a more structured presentation of content, and other changes will be implemented in the coming months. We look forward to getting your feedback, both in words and through your manuscript submissions.

References


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