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Asynchronous communication for medical journal editorial teams in a diverse global research community

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Medical journal editors face many challenges in the ongoing transformation of scientific publishing including the replacement of print by digital publication, the proliferation of journals, increasing emphasis on open access and the introduction of preprint websites. Historically, the evolution of journal editorship reflects the changing environment and standards for scientific publishing.[1] Over the past 50 years, it has become established that an essential function of a medical journal is to provide a rigorous peer-review process with a timely editorial process for evaluation of original research.[2–4] However, the ability of journals to maintain this core function is in jeopardy given the increasing time constraints imposed on reviewers and the editorial team, who typically are active researchers, educators and clinicians. Peer review remains at the core of medical publishing yet many qualified reviewers have little time to provide a thoughtful review. Of even more concern, while the editor of a major medical journal likely has dedicated (eg, funded) time to be an editor, the many other people who participate in the editorial team are less likely to have 'protected' time for journal editing and provide this service altruistically.

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Editorial decisions take time—time to select and invite reviewers, time to read and consider the review comments, time to make a decision whether the research is high quality and adds to the current literature and time to decide whether the topic fits the journal scope. If the paper is sent for revision, the editorial process requires even more time for another review cycle, statistical review, checking for overlap with previous publications, ensuring appropriate ethical standards have been met and so on. Even for papers that meet all these standards, the final decision about publication ultimately is a curatorial process based on the focus of the journal, priority for publication and interest to readers, researchers and the general public. Like a museum choosing which artworks to show in an exhibit and how to present that art, each journal decides which original research papers to publish, along with editorials, review articles and other content to place that research in context. All these steps take time.

In contrast to the extensive debate and discussion about peer review, the editorial decision-making process has received little attention.[5–7] In recent decades, most clinical cardiovascular disease journals have had an editor-in-chief (EIC) and associate editors (AEs), mostly based at the same academic institution, with weekly in-person meetings to make decisions about publication of submitted manuscripts. This traditional model for medical journal editing has the advantages of a standardised schedule and an editorial group who works closely together, allowing a common editorial vision. There are obvious disadvantages as well including lack of geographic diversity, expertise limited to those at a single institution, a similar experience of the current practice of medicine and having an editorial team who likely report to the EIC at work, not just in the context of the journal. In addition, this approach requires a considerable time investment when the number of hours per year is multiplied by the number of people participating. Although there likely will never be randomised controlled trials of different approaches to editorial decision making, there are many potential advantages to an asynchronous communication model for medical journal editing.[8 9]

Over the past 10 years, the editorial team for *Heart* has implemented an effective and efficient web-based asynchronous approach to decision-making for a journal publishing original clinical cardiovascular research. Our editorial team was truly international, spread over five continents. Supported by a web-based online editorial platform, submitted manuscripts underwent initial editorial evaluation with about 50% rejected without review, usually because the topic did not fit within the journal scope or because the priority for publication was very low. All other manuscripts were sent for external review by an AE; based on those reviews and their own assessment, the AE sent a recommendation to the EIC about revision, rejection or transfer to an alternate BMJ journal. The goal of these initial steps in our workflow was twofold. First, we sought to ensure that our external reviewers time and effort was used wisely. Second, although rejection-without-review is disappointing for authors, it allowed them to quickly submit to an alternate journal, shortening the time from completion of research to final publication.

For most manuscripts, the decision to reject or send for revision was straightforward with concurrence between the AE and EIC. When the decision was less clear or when priority for publication was intermediate, additional AEs were asked to provide input before making a final decision. Our philosophy was to send only those papers for revision that we ultimately intended to publish in *Heart*, of course provided the authors responded appropriately to the comments of the reviewers and editorial team. After the first revision, all research papers underwent formal statistical review with the goal of ensuring data were presented clearly and analysed appropriately in the final publication. We expected that any concerns from the editorial team, external reviewers and statistical review that could not be fully addressed in the manuscript were acknowledged in the limitations section of the discussion. With this workflow, only a small number of the manuscripts sent for revision were subsequently rejected when authors failed to fully address reviewer comments or the statistical review identified an irremediable flaw in study design or data analysis.

After the initial selection of manuscripts that we intended to publish in *Heart*, our

Table 1 Comparison of a synchronous versus asynchronous approach to medical journal editing

	Synchronous	Asynchronous
Description	► Editorial team together in a room or on a teleconference. ► Immediate responses to emails, text messages, etc.	► Editorial team members make individual decisions on web-based platform. ► Intermittent responses to emails, text messages, etc.
Real-time	► Real-time with everyone participating at same time. ► Finding a time that works for all is a challenge with busy schedules. ► Block of time needed at regular intervals.	► Not real-time; instead each person works individually. ► Allows each person to do tasks as their schedule allows, even in small time increments.
Time lag	► Real-time discussion useful for 'brainstorming'. ► Little time for processing or reflection.	► Variable time lag based on agreed standards for providing input. ► Allows time for processing and reflection ('deep thinking').
Time zone and geographic equity	► Multiple sites can participate by teleconferencing. ► Different time zones may limit participation or be inconvenient.	► No time zone or geographical limitations. ► Allows a worldwide team to work effectively together.
Documentation and transparency	► Recording audio or video possible but difficult to link to each manuscript. ► No clear audit trail of decision making.	► Automatic documentation linked to each manuscript. ► Detailed and accessible audit trail.
Communication skills	► Mostly verbal in common language. Allows complex or sensitive discussions. ► Keeps everyone on same schedule.	► Written communication skills essential. ► Team members must be responsive and timely in communications.
Risk of bias	Some individuals can dominate the discussion (seniority, personality, race/ethnicity, gender, body size, language, etc).	► Allows everyone an equal voice. ► Reduces explicit and implicit bias.
Diversity of ideas/Quality of decisions	► Advantage of multiple viewpoints. ► Potential for simply agreeing with first opinion voiced or opinion of leader. ► Possible reluctance to voice novel ideas.	► Each person submits recommendation independently resulting in higher quality decisions. ► Greater diversity of ideas. ► Potential bias at the level of individual papers.
Time management	Meetings are time consuming, inefficient for most participants and reduce productivity.	More time for reading and editing individual manuscripts, less time in meetings.
Team building	Enhanced by synchronous interactions (especially if in-person).	Depends on clear leadership and expectations but may also benefit from periodic team meetings.

editorial goal was to work with authors to improve the presentation of the research design and results in the final publication based on the process of review and revision. We also hoped to improve the precision in wording and avoid extrapolating conclusions beyond that supported by the data. Our efficiency goal was to keep the total time from initial submission to final publication as short as possible, while maintaining the key role of peer review, by using this asynchronous decision-making model. Our success in meeting this goal is reflected in a mean time from initial submission of original research to first decision of 3 days for all articles and 26 days for articles sent for external review. The production team also was efficient with a mean time from acceptance to online publication in final pdf format of 24 days. The total time from initial submission to online publication in *Heart* was 82 days, with 39% of these days due to the time needed for authors to prepare and submit the first and second revisions in response to external and statistical reviews.

This asynchronous decision-making process had many advantages in contrast to the traditional approach of weekly in-person or online editorial meetings (table 1). Each member of the editorial team worked individually at the times that worked best for their own schedule. The time that would have been consumed by a group meeting, in which most participants have not read the manuscript and are simply listening, can instead be spent carefully reading reviewer comments and the submitted manuscript. Individual editorial time allows more time for processing and reflection, often referred to as 'deep thinking'. Avoiding synchronous group meetings meant that the international editorial team could work effectively together without expecting anyone to participate outside normal working hours. In addition, this approach minimised any language bias, reduced the likelihood of AE burnout and allowed individual AEs to 'step away' as needed for clinical, research or personal reasons without impacting the overall editorial process. In particular, our approach was resilient during the early days of the COVID-19 pandemic as we simply shifted AE workloads from person to person as the pandemic moved around the world.[10] Importantly, this entirely web-based process also automatically created a detailed audit trail, with all comments and decisions documented in a transparent and archived format.

Of course, an asynchronous approach requires leadership, clear expectations, periodic monitoring, written communication skills and frequent updates.[11] The number of research submissions sent for first revision, second revision and accepted were tracked in real-time. A weekly report to the EIC of all papers in review for >30 days allowed identification and correction of any barriers to keeping the review process within our goal limits. Each month, we shared with the entire editorial team the number of manuscripts sent for revision or accepted in each publication category, compared with our goal numbers, in both numeric and graphical formats for the past month and over a 12-month time frame. This monthly 'pipeline' summary helped ensure the number of accepted manuscripts was aligned with the number published in each issue. These monthly updates also facilitated communication about our editorial goals, current topics of interest and other issues. Consolidating communication into a monthly summary avoided cluttering the editorial team's inboxes with an excessive number of (often unread) emails. We met in-person annually at a major cardiovascular scientific meeting and online as needed.

Additional advantages of an asynchronous editorial process are less obvious but are just as important. First everyone has an equal voice; no longer does the 'most important' person in the room dominate the discussion.

It is likely that an asynchronous process reduces explicit and implicit bias, allows a greater diversity of ideas, resulting in higher quality decisions and more useful comments for the authors about revision. From a historical perspective, the idea that a group of editors should discuss manuscripts verbally is relatively recent and it remains unclear whether decisions about publication would be different or whether these decisions are more likely to be disproportionately influenced by the views of one or two individuals with a synchronous versus asynchronous approach.

Clearly, there are some advantages to the traditional model of journal editing. It may be easier to build a cohesive team when everyone is in the room together. Discussions about each manuscript can be interesting and informative to the participants. However, there is no evidence that the traditional model versus a web-based asynchronous model results in publication of higher quality research papers. Many journals now use a hybrid model with some editorial team members at the EIC's institution and others participating online. This may avoid some of the limitations of the traditional model but still misses out on the advantages of a fully asynchronous approach. The question is whether the potential benefits of the editorial team discussing decisions about publication as a group, either in-person or online, overweight the time commitment and possible bias of this approach.

Our goal for *Heart* over the past decade has been to attract and select high-quality research relevant to clinical practice, improve data presentation and clarity before publications, include linked editorials to provide context, commission review articles to integrate new research developments with previous knowledge and to disseminate this information in the print and online journal and via digital media and to the general public.[5] We sought to improve the quality of published research by requiring research checklists, obtaining a statistical review for all papers, publishing a series of articles on the optimal graphical display of numerical data, promoting precise wording (avoiding the suggestion of causation in studies showing an association) and ensuring conclusions were limited to the data presented. We also used an innovative approach to editorial decision-making based on asynchronous communication. We found this approach was efficient, durable, resilient, inclusive, time-zone friendly and transparent.

We sought to increase diversity, equity and inclusion (DEI) among the editorial team and in reviewer selection, invitations to join the International Advisory Board (IAB), authorship of editorials and review articles and by both encouraging research that addresses DEI and commissioning additional relevant journal content. For example, rather than simply inviting reviewers from the group of people already known to the editors, we enhanced diversity by recruiting new reviewers, not personally known to the editors, identified via online research publication databases. We often then invited these reviewers to write an editorial accompanying the research publication if the reviewer had provided thoughtful and helpful comments, indicated an editorial was needed and volunteered to write it. Furthermore, rather than a static IAB, members were appointed for a set number of years, with the top reviewers each year invited to join the IAB, as other rotated off when their term ended. A journal is a community of authors, editors, reviewers and readers; we need to expand that community to be more diverse and more inclusive, in every sense of the word.

Of the many challenges facing medical journal publishing, we should prioritise enhancing the editorial process itself. There are several viable models for editorial decision making; all have advantages and disadvantages. Medical journals aim to ensure the final publication is accurate and comprehensive via a process of peer review and revision and also have a curatorial function in selecting papers that advance medical science, fit the journal scope and will be of interest to readers of that journal. The process for publication of medical research should be efficient and timely both to reduce author, reviewer and editor workloads and to ensure medical research results are available to the public as quickly as possible within the framework of a rigorous review process.

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