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EDITORIAL

RECOT and the future of medical journals in the digital age[☆]

RECOT y el futuro de las publicaciones médicas en la era digital

The future for medical journals looks bright. While the quality of article content will remain critically important, major advances in the future will come from improved access. Discovery of information and its delivery to readers on handheld devices will be the key elements of change. When *Revista Española de Cirugía Ortopédica y Traumatología (RECOT)* became indexed in the MEDLINE database it joined a select group, which, as was noted in a 2013 editorial in your journal,¹ “brings together the best scientific journals”. Many editors have lamented that getting accepted into MEDLINE is a Catch-22 – a paradoxical situation in which solving one part of a problem creates another problem that ultimately leads back to the original problem. Some call this circular logic. The Catch-22 is that journals need quality content and recognized authors to get indexed in MEDLINE and journals cannot get quality content and recognized authors unless they are indexed in MEDLINE. Of course, *RECOT* and other journals prove this Catch-22 wrong every year. *RECOT* journal has quality content that is accurate, timely, original, and it adds important information to the subject field. It also has a rigorous peer review process, strong ethical guidelines, accepts comments and dissenting opinions, and is free of questionable advertising. Moreover, its production quality is superb, with data and images clearly presented, understandable, and reproducible.

Without question, there is a certain cache, or mark of quality, associated with being indexed in MEDLINE. The application process is demanding, the review is rigorous, the standards for acceptance are high. Only about 15% of all journals reviewed by NLM’s expert advisory committee are recommended. MEDLINE indexing generally results in more and better manuscripts so journals can be more selective in what they publish. Manuscripts often are received from persons in countries outside of their normal readership. Because indexing results in inclusion of citations in the PubMed database, there are more accesses to the journal’s website. More articles in other journals cite MEDLINE articles in their references. All of these are highly desirable

by-products of indexing. One more indicator – MEDLINE-indexed journals often grow in number of articles published. In 2006 a total of 90 journals were approved for MEDLINE. In that year those journals published 5883 articles. By 2010, those same journals published nearly 10,000 articles, a 68% increase.

In his 2013 editorial Vaquero stated that MEDLINE recognition is not an end but the beginning of more improvements that will lead to the delivery of more valuable information and increased recognition to the journal.¹ *RECOT* has seen more tangible benefits in terms of new readers and more manuscripts, but what else does it mean to be indexed in MEDLINE? It brings certain obligations as *RECOT* content will now be accessible and instantly deliverable to billions of potential users each year. The journal will gain many readers as it becomes more well-known on the international stage. However, many users have short attention spans; if they cannot be satisfied immediately, they go to the next source of information. Has *RECOT* unknowingly put up obstacles to full text access on its website? Does the English version meet the needs of global users, some of whom use English as a second language? Is *RECOT* ensuring long-term digital preservation of its content in a way that guarantees permanent access and delivery? Is the journal’s editorial staff looking for articles that provide insights on important issues that affect a large number of people? Are the methods used to explore a topic applied rigorously and do the data support the conclusion? Moreover, does the article tell a good story, is it well-written and understandable? With MEDLINE indexing comes more responsibility, but *RECOT* has shown it can meet this challenge.

What changes might we see in *RECOT* and other journals? The conversion to open access, the primary alternative to subscription pricing, has been a slow development. However, with libraries running low on funds to buy journal subscriptions, the open access or author-pays model is often the only way for new journals to break into the marketplace and for some older journals to sustain themselves. Open access is no longer an alternative to traditional publishing but often a better model.

Open access movements supported by government and private sector mandates in the US, the UK, and elsewhere require free public access to research results within six

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months of publication. Growing numbers of scientists and clinicians need to be constantly linked – think Facebook and Twitter. Open access, free article availability on the Internet to be used in any legal way, is the ultimate barrier-free way to publish. In this new era, the reputation of the journal can become less important. Robert Kiley, head of digital services at Britain's Wellcome Trust, the largest non-government research grant funder in the world, said that "If you come to Wellcome for a grant, we make it clear that funding decisions are based on the intrinsic value of the work, not the title of the journal in which the author's work is published. No grant review committee", Kiley continued, "will make any use of journal impact factors, rankings, lists, or other perceived standing of publishers in assessing the quality of research outputs."² While not everyone agrees with Kiley's pronouncement, most individuals agree that there must be new ways to determine what is valuable to readers. Our digital environment now lets us collect useful information on more than the number of times an article was cited. However, no single indicator can tell the whole story and it will not be easy to create a new way to measure quality. We must avoid replacing one imperfect number with another.

The future of journals is about how we, as users of an ever-growing amount of scholarly information, select the most relevant and significant articles. Whereas authors are concerned about what impact their output has, and where to publish next to receive a wider audience, readers are looking for value. Readers have relied on three primary filters: (1) Peer review; (2) Citation counting; (3) Journal Impact Factor score. Other filters used by readers include visits to the journal's website, downloads, search sessions, and the like. None of these measures tell us about things we should be measuring, such as, was the reader satisfied; was her knowledge improved; did the information affect the outcomes of her research or clinical care; did it help in new discoveries? These are difficult questions to answer but they will not be answered without new measures.

There are more papers and readers than ever before and this has led to the increased importance of bibliometric measures of article value. These measures provide a more varied and detailed picture of a journal's achievements and how the content benefits physicians in the clinical and research world. Besides citation counts, we have usage logs to tell us how users maneuver through journal websites; expert rankings of article quality; social bookmarking and reference sharing sites; blogs and media coverage in newspapers; and social networks. No longer does it take 2–3 years to measure impact; sites like Facebook are instant indicators of trends. The key for the future will be to manage measures from multiple sources to provide users with an understandable summary and not simply a list of measures and numbers as we have now. Soon many more journals publish these new filters to help their readers find articles of value. The field is in its early stages and more research is needed in ways to normalize the data. Experts will need to investigate patterns and relationships between usage data and the citation, allowing users to discover articles of interest that they might have failed to notice.

In 1992, more than 20 years ago, the first electronic-only medical journal, the *Online Journal of Current Clinical Trials*, was published. It lasted only four years but it ushered in the era of Internet publishing, good news for publishers,

but also for authors and readers of journals. Some thought that the Internet would quickly revolutionize journal publishing. It turned out that change has not occurred as rapidly as many thought. However, we are now poised for major changes – in fact, many have started already, as electronic journal publishing has become the norm and issues such as open access publishing, the impact of social media, creative ways to present articles, and technological advances are all part of the new digital landscape.

As we enter the world of the future of journals let us not forget that publishers, editors, and authors have had 350 years to develop a highly efficient format whose content adds new information to the record of previous accomplishments. Journals assure scientific merit through a process of peer review and they create a production quality that readers identify with, be it a broad-based clinical publication or a specialty journal. For centuries, the journal article has been considered the smallest unit of scholarly communication, but that may not continue to be the case. When the first journal was published in 1662 it, too, used an emerging technology – the printing press – to disseminate scholarly knowledge. Now we are poised to see the Internet replace traditional access methods with algorithms that filter, rate, and deliver scholarly information as it happens. According to Jason Priem, one of the leaders of the new publishing movement, authors may create stories, like blog postings, and make them available and archived in an open network full of links, comments, annotations, and discussions. Peer review will be open to anyone and new measures will emerge to determine the value of scientific output.³

As Priem³ describes it, imagine waking up each morning to email from your personal filtering service that recommends the five most important things to read that day. You see articles that have just been published, that have already been read, discussed, cited, and recommended by others in your field of interest. They seem to meet your specific reading needs not because the original content is so much better but because there is added value and improved access. Their quality will be evaluated not by individual opinions but by the distillation of an entire community's assessments.

Discovery and delivery are no longer tied to print, and this means that assessing the value of a journal and an article will be different. Journal prestige is most often derived from Impact Factor, which is based exclusively on the frequency an article in the journal is cited. In the current system, it often takes months to publish a paper and two years to measure its impact. In open post-publication peer review, readers will instantly submit a review to a public online repository. The repository will link each paper to all its reviews, so that readers are automatically presented with evaluative information. Any clinician or researcher can submit a review or access another person's review. This kind of peer-to-peer editing should help readers understand and judge the value of a paper. It is important to emphasize that reviewers do not decide what is to be published. Their influence depends on whether they can convince the community of readers of the importance of what they are saying.⁴

The next step in the future might be that original papers will not necessarily need journals in order to become part of the scientific literature. Publications on the Internet could be instantaneous with evaluative information to follow immediately. If the weight of the criticism and the

importance of the paper justify it, the authors might choose to revise the paper. Important papers will likely accumulate more reviews; and prestigious journals like *RECOT* may evolve into Web portals that control the distribution of papers and their post publication reviews to facilitate more interaction by a community of users. *RECOT*'s publisher, Elsevier, is trying to design the online article of the future. It is concentrating almost exclusively in making content more discoverable and readable on hand-held devices. Content will be optimized for the mobile browser. To achieve the maximum value from the content, Elsevier is guided by three principles – improve the typography so it is more readable; present content on the right place on the reader's screen; and provide sidebar comments to enrich the content. The end result should be articles that are more interactive but also more easy to access and deliver.⁵

The future of medical journals will be one in which access and delivery of information will soon be much different. Hopefully, these changes will be beneficial to publishers and to the millions of physicians who use journal articles

to make decisions that prevent illness, help treat the sick, and explore ways to reduce the burden of pain and disease.

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