AJNR

AJNR Quo Vadis? **An International Perspective on the Journal's Next 10 Years**

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Since the first article was penned by the inaugural Editor-in-Chief Juan Manuel Taveras (1919–2002)[1] in January 1980, *AJNR* has come a long way. *AJNR* has established itself as the premier journal for all aspects of the neuroradiology subspecialty. Despite being officially the journal of the American Society of Neuroradiology and of the American Societies of Functional Neuroradiology, Head and Neck Radiology, Pediatric Neuroradiology, and Spine Radiology, *AJNR* has attracted a large international following with numerous excellent contributions each year from across the globe.

"To move the world, we need to move ourselves" (Socrates). This quote also applies to neuroradiology and *AJNR* more specifically. The field of neuroradiology is continuously evolving. The new Editor-in-Chief of *AJNR*, Max Wintermark, with the Editorial Board's support, has already set many new transformative initiatives in motion. These will ensure that *AJNR* will remain integral to keeping those interested in this field connected and apprised of new developments. The rate at which neuroradiologic insights and innovation are introduced, however, is continuously increasing, especially in an era of broader access to information and global connectedness. Contributions from Asia and the rate of increase of journal submissions from there are just one such example. For *AJNR* to maintain its relevance, it will be crucial to keep up with this pace; ensure that information content remains timely, relevant, and correct; and is disseminated quickly. For the benefit of its readership, it will also be crucial for the journal to both identify and adapt to new trends swiftly, not only on content but also on its delivery.

In the last few years, the topics that gained the most attention in radiology have certainly been machine learning and artificial intelligence (AI), and they will most likely remain major talking points in the next few years. Neuroradiology has been an early adopter of this technology. Initially feared, AI is being increasingly embraced by institutions, mainly because of its broad range of applications and the radical impact AI may have on improving clinical workflows, increasing radiologic productivity and diagnostic confidence, speeding up image acquisition, and reducing image noise and radiation and/or contrast dose. Faced with an ever-growing workload and a shortage of radiologists and technologists, many hope that AI will be the savior.

While we are still in the process of understanding the performance of individual AI tools and currently there are many more new fields of applications just being discovered and introduced, we will eventually see this technology becoming commoditized. AI will augment radiology like so many other innovations

before (eg, multidetector CT, PACS, parallel imaging, and so forth), albeit on a much broader scale and at greater dissemination speed.

Before readers become too fatigued about, for example, the next tumor classification or hemorrhage-detection algorithm, a key consideration for *AJNR* should be that authors who report on AI-tools that are not commercially available share their algorithms and corresponding data with the community so that others can build and expand on their work and/or validate the method on their own data.

The key to AI algorithms is not only the network architecture but also the training and validation data, the weights of the network, and other implementation details. In the future, *AJNR* can play an important role here to facilitate collaboration and create a living ecosystem akin to the Papers with Code initiative, which evolved in the computer science community. *AJNR* can be a curator of relevant data for use in developing and testing algorithms and can provide a framework for publishing validated studies. In the age of generative AI, *AJNR* must also be the sentinel that ensures the veracity and accuracy of published work on AI algorithms that are relevant to neuroradiology; i.e., *AJNR* must serve as a credible source of information that is valued by researchers and clinicians alike around the world.

AI aside, the last few years have also ushered in several considerable technologic breakthroughs. Among them, FDA-approved ultra-high-field ($B_0 = 7T$) and ultra-low-field ($B_0 = 64mT$) MRI, TOF-PET, and photon-counting CT. Thanks to recent developments in consumer electronics, we now have access to virtual reality goggles that boast internal displays and have better performance (i.e., pixels, refresh rate, and luminance) than diagnostic PACS monitors. Another consumer technology that benefits radiology is satellite-based Internet access. We all notice a scarcity of radiologists globally and that, especially after coronavirus disease 2019 (COVID-19), many radiologists, particularly the younger generation, value flexibility in their work environment and location; this can be enabled by such leaps in technology. The advent of satellite-based Internet access will not only have an impact on where neuroradiologists can read their studies, it will conversely have an impact on the source of the studies, be it from the Australian Outback or the middle of the Amazon. Obviously, some areas will not have high-end MRI and CT machines producing immaculate data, but it will provide opportunities for neuroradiologists to provide expert opinions on basic scans, share protocols electronically, teach local health care providers and radiologists, or contribute in any other form to a democratized access to high-level neuroradiology expertise globally.

Neuroradiologists have always been early adopters of new technology (eg, MRI, PET, photon-counting CT). At the 10th anniversary, J.M. Taveras wrote, "Try to be the expert in 1 area of radiology, but do not become a specialist in a single machine or procedure."[2] This mantra also applies to *AJNR* because, with some notable exceptions, the more generalized a journal becomes, the less interesting it becomes for its specialist readership. The journal will no doubt keep its clinical edge and core mission, but

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it will be also important for *AJNR* to keep up with technologic innovations and the impacts these may have on the diagnostic/ interventional work-up of patients and their outcomes.

During *AJNR*'s journey to date, we have also encountered many new advances in imaging methods, such as quantitative susceptibility mapping, DTI, arterial spin-labeling and dynamic susceptibility contrast perfusion MRI, MRI fingerprinting, measurement of glymphatic flow, material decomposition CT (eg, blood versus iodine), single-energy reconstruction CT, CT perfusion, as well as practice-altering interventional methods such as mechanical thrombectomy and middle meningeal artery embolization, which have dramatically changed patient survival and quality of life. Not infrequently, *AJNR* has published seminal papers that demonstrated the diagnostic utility of these nascent technologies and procedures, thus providing much-needed empiric and methodologic evidence to support their use in clinical practice. These publications will continue to be a major pillar of the journal. Yet, despite key contributions and leadership of neuroradiologists, *AJNR* has missed out on publishing the primary results of landmark trials. To some extent, it is the limited reach of the journal; after all, it caters to a small subspecialty. However, a major aspect is the prestige and Impact Factor draw of the major clinical journals. If we (as neuroradiologists and neuroradiology researchers) want to help our community's journal become more visible, perhaps we should start publishing our trials in *AJNR* and pay less attention to publication vanity metrics. Of course, there are also the appointment and promotion committees and other bodies who still pay attention to where we publish, which adds an additional level of difficulty.

To increase its international standing, *AJNR* may need, in the future, to also reflect on regional differences in radiologic and health care provision. Countries with a greater proportion of public health funding or smaller budgets might use different guidelines or imaging tests, simply because of the lack of reimbursement or access to technology and drugs. For example, some countries in Europe or Asia reimburse only regular head CTs for acute strokes, but, to our surprise, not CTAs. Similarly, the latest Alzheimer treatment drugs are not yet approved in Australia. These practice variations should be considered in peer review and editorials.

Although some readers (including this author) prefer to read journal articles in printed form, the future lies in the electronic journal. This format is not only cheaper to produce, it also allows a greater number of articles and pages to be published and offers many other benefits ranging from provision of Online Supplemental Data, videos, data and code, author-generated pitch decks, and AV-files, as well as multilanguage translations and AI-generated (Blinkist-like) summaries. It also improves access, given the limited number of printed copies and the requirement for a subscription to access an article, it also improves access, which in turn benefits the journal as it will increase the number of citations.

Despite the current skepticism around generative AI relative to plagiarism and the proliferation of fake articles, AI-augmented writing (when in the right hands) will eventually be seen as beneficial (and perhaps more pleasing to the readership), especially for authors whose first language is not English or who are not eloquent writers like Nancy Fischbein or Pamela Schaefer. We will need to draw the line, however, when generative AI is used to create large pieces of a manuscript and "invent" content or when "publication farms" are creating "variations on a theme," just for the sake of yet another publication. Fortunately, publishers already have tools to screen for such blunt attempts at plagiarism.

The publication media and clinical/technical topics may change; however, *AJNR*'s mission will not. The key role of the journal will remain to provide an outlet for authors to share their findings with an interested audience primarily in neuroradiology and related fields, perhaps with added considerations of alternative vantage points and differences in practices on both other sides of the 2 big ponds (i.e., Europe, Africa, and Asia). Despite all the excitement around imaging technology and AI, the future demand will remain strong for empiric studies, with a focus on diagnostic or interventional neuroradiology that aid and improve the practice of neuroradiology. As wonderful as annual meetings are, not everyone can attend in person; thus, it is important that the society have a journal in which members can share their latest discoveries in neuroradiology and to which we can refer to expand our knowledge of new treatments, standards, nomenclatures, and imaging findings.

I wish *AJNR* all the best for its next chapter as an electronic-only journal.

REFERENCES

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2. Taveras JM. **Editor's comments on the 10th Anniversary of AJNR**. *AJNR Am J Neuroradiol* 1989;10:1–2