

From *pAJNR* to *eAJNR*

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Eighteen years ago, when I became Editor of the *American Journal of Neuroradiology* (*AJNR*), the editorial team wanted the journal to go paperless. We surveyed the readership and found that about 50% still preferred their journal in a printed format. Four years later, we sent out the same survey again only to find that reader preferences had not changed. Thus, we decided to implement a “Go Green” initiative so that our readers could voluntarily give up their printed journals and go paperless. You may recall that this idea was successful and thus paved the way for a paperless publication.

Let's begin by thinking of the advantages of a paperless journal. Things that immediately come to mind are efficiency, reduced costs, easier access through a variety of electronic devices, safeguarding contents by automatic backups (durability), streamlining publication processes, readability, improved searches, multimedia inclusion, and, finally, portability that goes with user convenience and comfort. Of course, helping the environment is also a benefit that is important to us all but especially to the younger generations of readers. Although *AJNR* has a circulation of only a few thousand, is printed on paper certified by the Forest Stewardship Council, and is packed in eco-friendly bags, any contribution to better our environment should be taken seriously.

In this era of spiraling costs, how does a paperless journal reduce expenses? Lower stationary costs, no ink printing, no pagination, no binding, no bag or wrapper, no mailing labels (which also need to be printed and attached), and no postage all help manage expenses. Replacement of journals lost in the mail, something that commonly happens with sending *AJNR* internationally, is also avoided. Studies have shown that employees spend an average of 86 hours/year in activities related to paper-based file retrieval and that this time could be used in other more beneficial activities, especially at *AJNR* where the office consists of only 3 individuals. Companies offering paperless solutions also cite a savings in office space, something that is becoming more important as we migrate to hybrid working environments and spend more time doing our jobs from home.

Thus, there are significant advantages to going paperless and that is why I was delighted when Dr Wintermark, *AJNR* Editor-in-Chief, told me that the decision to cease printing the journal was recently made. Worried that my reaction would not be enthusiastically shared by others, I asked all surviving Editors of *AJNR* (in chronological order) to give me their opinions regarding this decision, and this is what they had to say:

Robert M. Quencer: “The decision to evolve the *American Journal of Neuroradiology* to a paperless format makes sense on many levels. For those who already receive medical and scientific journals in digital formats, it is recognized that there are myriad advantages to such transmission of information. The easy accessibility on smartphones, tablets, and desktop computers is obvious,

but it goes beyond this ease of use and portability. Making the text size proper for reading, saving/filing articles, importing images to files for future reference, and ready accessibility to articles are immediately recognized values of an electronic format. Conversion to a paperless environment is in keeping with the way medicine is practiced today as seen with electronic medical records, consultations, and acquisition of crucial patient information, and there is no reason a medical journal should view educational and new scientific information any differently. There are more benefits to this change, including but not limited to costs but also to more subtle ones such as demonstrating a commitment to lessening the environmental impact of printed publications. Finally, although I am somewhat reticent to speak for others particularly when they cannot have a say in this issue, I wish to add that I believe that both Drs Juan Taveras and Michael Huckman as past Editors of *AJNR* would have enthusiastically endorsed the change to an entirely paperless journal. They both were forward-looking and would recognize this new format as an important step forward. This is the proper time for the *AJNR* to make this change.”

Robert I. Grossman: “It is interesting to me that I had this discussion with neuroradiology colleagues more than 25 years ago. Yes, it is the right time to stop destroying forests and have the journal at any place and at any time desired. It will get read more as access is available on your smartphone, even as you are sitting in a waiting room! Paper journals gather a lot of dust because they often go unread. How wonderful not to have to tear, print, and file any pertinent articles. This is an idea whose time has more than come. It will improve the quality of images and save postage and print costs. Let's face it, depending on the postal service is not always a good thing. Anyone who desires to read the journal on paper can always print what they want, hopefully on 2 sides of the paper. For the Luddites still lamenting the loss of hard copies and the arrival of the electronic age, the passing of direct carotid angiography, pneumoencephalography, and myelography, may I suggest that any time saved can be spent in search of the dodo! Younger neuroradiologists may enjoy reading *AJNR* with their Apple Vision Pro devices, and I am sure that soon this type of device will proliferate. Congratulations to Max Wintermark and *AJNR*.”

Let me expand a bit on the last comment from Dr Grossman. Imagine embedding 3D files in articles that can be printed as such. Brain models would facilitate the understanding of anatomy while printing devices would help us to understand how they work. Visualizing lesions and procedures in 3D on virtual or augmented reality goggles from files found in articles would be fantastic for educational purposes and patient care while maintaining privacy. Many articles already offer accompanying videos, but to be able to interact with them is something that only electronic media can offer.

Jeffrey Ross: “I started my tenure with a ‘don't fix what isn't broken’ attitude, given that a relatively large contingency of polled subscribers at that time were still in favor of maintaining the print issue. This percentage decreased significantly during my 8 years as Editor, and over the past 2 years, the possibility of

converting to solely an online publication was very much an option. It then became more of a philosophical question: Do we transition now or allow a new Editor to make that transition? I believe in giving this opportunity to the new Editor and to determine its timing. The reasons for online-only are many, but since I like alliterations, let's go with S's.... Speed, Space, Search, Specie, and acceSSibility. Speed: articles do not need to be embargoed by waiting for discrete issues of the journal to be published but should be available in real-time as manuscripts are accepted and formatted. Space: space is larger for electronic publications and always more limited for print. The decision to move images and tables to online-only became a frequent choice toward the end of my tenure. The downside of infinite online space is the author's responsibility to maintain readability and tight prose construction and not present the reader with an unfocused and rambling montage of words and images. I think the quotation (variously attributed to Mark Twain and Winston Churchill) 'I would have written a shorter letter if I had more time' is appropriate for all scientific publications. Search: an obvious advantage of electronic publications is the ability to search easily within documents and to link out to references and other materials. Specie: the cost of the print component to the budget of the journal is significant and that money is better spent on providing other services. This positive aspect must be balanced with the loss of revenue from advertising, which is greater for hard copy publications than for those online, but *AJNR*'s advertisement revenue is not critical. Accessibility: we all have smartphones, so we all have the journal with us 24/7. Download the PDF before a flight (though many airlines now offer Wi-Fi) and keep up with the latest research. Online materials also provide greater flexibility in formatting and displaying text/images, which is not possible with hard copies. Dynamic scrolling with viewing of image stacks or angiographic runs is only possible with electronic publications. The future of a paperless *AJNR* is bright, and I look forward to seeing the innovative changes that are made to improve and make more efficient the dissemination of research and educational materials to our readers."

Because a paperless *AJNR* makes sense, I was not surprised to find out that my colleagues and past Editors agree with me,

and I think that the readership should share our excitement. Despite all the above advantages, many of our readers may still ask about other benefits they can expect from a paperless *AJNR*. For this, I asked Dr Wintermark to briefly give us an idea about new activities, contents, and benefits that *eAJNR* will bring to us, and this is his response.

Max Wintermark: "I am truly humbled by reading the words of those who came before me. Previous *AJNR* Editors-in-Chief have highlighted the numerous advantages inherent in a modern electronic journal. Our strategic roadmap includes exciting features that empower readers to personalize their preferred content. These entail both primary, indexed content (streams of articles sorted on the basis of an individualized reader's interest) and secondary content (including cases, educational materials for trainees, technical updates, medicolegal insights, and technical tidbits). A new *AJNR* Web site will allow readers to seamlessly navigate through stacks of images, mirroring the routine practice of radiologists. This navigation will significantly elevate the quality and value of our articles, enhancing the learning potential derived from reviewing these images. Articles related to artificial intelligence will provide direct access to algorithm codes shared by the authors. The search functionality of the Web site will undergo substantial enhancement, transforming the journal into an extensive teaching file repository, readily accessible. The roadmap also includes automated translation of our articles into languages other than English, broadening the global reach of our journal. These are a few examples of the innovative features we intend to introduce in the upcoming months. We invite input and suggestions from our readers. Please feel free to reach out directly to me at mw.ajnr.eic@gmail.com."

My hope with this short editorial was to explain why *AJNR* must go paperless and why our contributors and readers, regardless of age, should embrace and support the change. To continue being the pre-eminent publication in neuroradiology, we must grow, change, and evolve. Because our professional organization owns the journal, because we are all colleagues with the same interests in mind, and because our size allows us to be nimble, we welcome this new era for *AJNR*.