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Science Matters

Stephen D. McLeod, MD - San Francisco, California

In 2017, upon assuming the role of editor-in-chief for *Ophthalmology*, I wrote an inaugural editorial reflecting on the role that the peer-review process plays in the advancement of science. Peer review is what we do as a scientific journal, so it seemed to be the obvious topic, and as much as we rely on it, who doesn't like to grumble about problems and pitfalls? As I now move on from my role as editor-in-chief, I've revisited the piece with some nostalgia. It was written for an audience schooled in science—students and professionals who regularly read scientific journals like *Ophthalmology*—but in no way did I anticipate the explosion of public interest in health sciences research and the process of validating and disseminating findings that the ensuing coronavirus disease 2019 pandemic has wrought.

Faced with the imperative to make critical personal decisions that could mean the difference between life and death, the public is now deeply invested in ascertaining the truth that research is intended to reveal. Do facemasks protect the wearer or reduce transmission from the infected? How safe is the vaccine? How important is a booster? If infected, what treatments are truly effective? The public's probabilistic sophistication that formerly seemed to reside exclusively in the province of professional sports fandom is now alive and well in the realm of coronavirus opinion.

Distinctions in levels of evidence we recognize as critically important if we are to apply research findings to care are now far, far more familiar to the public. In that 2017 editorial, I made reference to our goal of presenting the highest level of evidence for clinical decisions in *Ophthalmology*, ideally based on replicated prospective randomized clinical trials. However, the outbreak of a global pandemic that required identification of the culpable organism, an understanding of the epidemiologic features of transmission, disease, and death, immediate public health intervention, the design and testing of vaccines and targeted treatments, and the implementation of effective mass distribution highlights the critical importance of prompt and universal access to scientific information that addresses every stage of the research process.

Over the course of my tenure as editor-in-chief, these observations have influenced the evolution of the Academy's family of journals directly. Our expansion from *Ophthalmology* and *Ophthalmology Retina* to include *Ophthalmology Glaucoma* and *Ophthalmology Science* reflects our commitment to providing as broad a venue as we can across the field for clinically relevant science with impact. We are privileged to have partnered with the American Glaucoma Society to launch *Ophthalmology Glaucoma* and are grateful to the community of authors,

editors, and reviewers who have rallied to create a truly valuable resource for the discipline.

Although *Ophthalmology Retina* offered a successful template for *Ophthalmology Glaucoma*, it is *Ophthalmology Science* that represented the wild unknown. Like *Ophthalmology*, it is intended to be multidisciplinary and to draw from all aspects of the field. However, it is deliberately distinct in two important ways. First, it acknowledges the importance of high-quality exploratory, hypothesis-generating work and specifically targets early observation and investigation, a complement to the ready-for-primetime research we seek for *Ophthalmology*. Second, it is our first fully open-access journal. What does this mean? First, no subscription fee is required to view content. The costs for editing and production are borne not by readers, but by authors and their research funding agencies. Second, there is no physical journal. It is made available exclusively online. However, those are the only substantive distinctions; all articles undergo a rigorous peer-review process identical to that applied to others in the *Ophthalmology* family of journals, and each issue is held to the same production standards as its siblings within the family.

The challenges that I observed in that early editorial with regard to peer review apply as much to *Ophthalmology Science* as they do to the rest of our journals, but nevertheless, it is precisely the rigorous application of peer review that distinguishes a high-quality open-access journal from a predatory journal. Although our commitment to peer review has not changed across the journals, what we ask of our reviewers has evolved. One noteworthy area is that of the application of race in biomedical research and reporting, and we have tried to help authors with updated guidelines in our published instructions. Very commonly, race is introduced as a variable in analysis, often with little thought as to how the category was established in the dataset, why it might be a relevant consideration, or what any distinction that emerges might mean. Very infrequently is it biologically plausible to attribute these differences to genetics or racially distinct physiologic features, and the question is left hanging. Where appropriate, we have introduced an additional stage of peer review specifically to address the rigor of analysis by race, and we hope to see this emulated across clinical journals.

As I move on to the role of CEO for the American Academy of Ophthalmology, the leadership of the journal now falls to an experienced editor and a truly distinguished scholar, Russell Van Gelder, MD, PhD. Dr. Van Gelder is a seasoned scientist, author, reviewer, and editor who has served our journal so well over the years, not only as an editorial board member for *Ophthalmology*, *Ophthalmology*

Retina, and *Ophthalmology Science*, but also on the journal's advisory board. He brings a deep knowledge of science and its adjudication as well as an acute sense of the need that our profession and practicing physicians have for the most rigorously vetted information to guide our care. In concert with fellow editors-in-chief for *Ophthalmology Glaucoma*, *Ophthalmology Retina*, and *Ophthalmology Science*—Henry

Jampel, Andrew Schachat, and Emily Chew, respectively—our journals are in the best of hands. We in the Academy are deeply indebted to them, to our spectacular editorial board, and to our host of indefatigable volunteer reviewers for the work they do to bring the best science to bear on our patient care. My most sincere thanks to all, and we look forward to a grand future for our journals.

Footnotes and Disclosures

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