Keeping reproductive science visible, viable, and valuable—a call to rethink how we publish

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A few years ago, we began an informal discussion about how infrequently reproductive-related research appears in general science journals and, correspondingly, how challenging it can sometimes be to get our work published beyond topic-specific journals. Although this is a thought shared anecdotally by many researchers in our field, it is difficult to design a rigorous and controlled study to actually prove this point. However, to try and quantify this thought, we designed a small and targeted retrospective analysis in PubMed to investigate the number of reproductive-related articles that appeared in three journal classes: a) Reproductive-specific, b) General Life Sciences, Impact Factor < 15, and c) General Life Sciences, Impact Factor > 15. The results of this study are reported in the accompanying article: “A small field for fertile science: the low visibility of reproductive science in high impact journals.” What is apparent from this work is two-fold: 1) the field of reproductive science as a whole does not have a topic-specific journal with an impact factor above 4, and 2) primary reproductive-related research is underrepresented in higher impact journals.

There are logical reasons for these two findings. For example, the field of reproductive biology and medicine is relatively small compared to others in the biological and life sciences, the funding for this type of research is low, and there are societal apprehensions and misconceptions that surround this work. Nevertheless these two findings have clear consequences for our field’s ability to be visible, viable, and valuable. Because our field’s work is generally underrepresented

in broader-interest journals, we instead publish in a large number of topic-specific reproductive journals that are by nature lower impact. Thus, a small number of investigators publish in a large space, which results in fragmentation of our field. A fragmented field means that it is difficult for ovarian and gamete biologists, such as ourselves, to stay abreast of the very best work across the breadth of our own reproductive discipline. Such reduced visibility and cohesion across a field may reduce the chances for interdisciplinary collaborations, which have been shown to drive today’s most successful and impactful research. As our field stands now, we do not make it easy for our colleagues in aligned areas of research—e.g. aneuploidy in cancer biology, epigenetics in cell biology, and endocrine disruptors in developmental biology—to find, contextualize, use, and cite our breakthroughs. Lack of visibility also transcends science and impacts policy, funding, and public awareness where we must constantly educate those outside of our field on the importance and value of our research. Finally, our findings have implications for our viability within the academic pipeline. We operate historically on the dogma—“publish or perish,” and in some cases the dogma is more accurately “publish high impact papers or perish.” Reproductive science researchers are automatically at a disadvantage to peers in other scientific disciplines because our field simply lacks the high impact journal menu. This may contribute to difficulties for some members of our field in obtaining tenure and may explain why there are limited numbers of reproductive scientists in the National Academy of Science and the Institute of Medicine (and the equivalents around the globe). Taken together, one can easily imagine a scenario in which all of these combined factors can ultimately lead to a negative feedback loop in which reduced field visibility and tight funding are intimately linked.

We are not the only ones who ponder the quandary of publishing in our field. In 2011 the editors of *Nature Medicine*, in the context of the Herrenhausen Symposium, convened leaders in our field to discuss the barriers to forward

Capsule A call to action to increase the impact of reproductive research.

Editorial to accompany: “A small field for fertile science: the low visibility of reproductive science in high impact journals.”

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progress in reproductive science and medicine. As participants in this meeting, we and others raised the need for a high impact reproductive journal for our field. To follow up on this idea, we initiated correspondence with leadership at Science, Nature, Cell, and PLoS to gain support for their journals' masthead on our field name. Our shared, field-wide vision was to create a consolidated, 'go to,' high-impact journal for our discipline, and the primary manuscripts found in such a journal would represent the breadth our field for ourselves and beyond. The journal would also include editorials on the important issues of our day including the use of parthenotes for basic research, the paucity of funding, and the value and intrinsic difficulty of studying reproduction in the context of infertility or sterility. It would also serve as a central repository to highlight key breakthroughs in our field that also appear in reproductive-specific as well as general science journals. Although this notion was met with initial intrigue, it has not come to fruition largely because of economic barriers.

The purpose of this editorial is to spark discussion and action. We propose that this action be the consolidation of reproductive research in a topic-specific journal that already has an established high-impact brand identity. Although most would agree that scientists, universities, funding agencies, and the general public would pay more attention to a reproduction journal with a higher impact factor, we are left with the high

hurdle challenges of how to accomplish this. Key feasibility and logistical questions arise such as: 1) Is simple alignment with a publisher that publishes high impact journals sufficient to command impact? 2) Can the relatively small field of reproductive science sustain a high impact journal? 3) Will investigators in the field commit to submitting their highest quality research to such a journal?

There are also potential solutions for increasing our impact that do not require a creation of a new journal. For example, there are reproductive scientists who regularly publish in high impact journals. Perhaps we should focus our efforts on having these investigators train members of our field to produce higher impact manuscripts. Efforts could also be made to place more reproductive biologists on high impact journal editorial boards so that work within our field is fairly reviewed. Regardless, some sort of action is needed to ensure the health of our field long into the future. We hope that our professional societies convene discussions on this topic at upcoming annual meetings, so the field can discuss the issue and create the momentum needed to change future impact.

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