

Research integrity revisited

The U.S. public and private sectors invest billions of dollars and countless hours of highly skilled labor into scientific research every year, an investment that delivers enormous benefits to society. Integrity is indispensable to the orderly and efficient progress of this research. Regrettably, there have been some well-publicized breakdowns in scientific integrity and reported cases of irreproducible research. A new report from the U.S. National Academies of Sciences, Engineering, and Medicine (NASEM), *Fostering Integrity in Research*, recommends specific steps to secure a future based on integrity and reliability (www.nap.edu/catalog/21896/). These include establishing a new Research Integrity Advisory Board (RIAB) and taking stronger actions to discourage and eliminate practices that are clearly detrimental to research.

There is currently no U.S. organization that promotes research integrity across sectors and disciplines on a continuing basis and as its core mission. The RIAB is proposed as a new, independent, nonprofit organization that will work with all stakeholders in the research enterprise to develop and disseminate solutions. Its specific priorities include bolstering the capacity of research institutions to investigate misconduct allegations, raising standards and improving research environments, and addressing other vulnerabilities in the system. A compelling argument for creating an RIAB is that research institutions have sometimes failed to promptly and adequately investigate potential transgressions, notably in cases where the outcome could negatively affect their finances or reputation. This failure compounds the damage done by violations of research norms. RIAB's intent will be to strengthen the ability of institutions to effectively perform investigations through encouragement, expertise, resources, and additional transparency. The entire research community—public and private research sponsors, regulators, research institutions, scientific societies, and publishers—should come together to launch

and support the RIAB. Funding by RIAB members could be established according to the size and type of organization as a percentage of their annual research activity.

Fostering Integrity in Research endorses the current federal definition of research misconduct as fabrication, falsification, and plagiarism (FFP), while asserting that many practices labeled as “questionable research practices” should be more clearly described as detrimental to research. Collectively, these “detrimental research practices” may be more damaging to research than FFP.

For example, papers with “guest” authors who have not worked on a paper, or “ghost” authors who worked on a paper but are not listed as authors, undermine the system of fairly assigning credit for the research and can shield conflicts of interest. Journals should set clear authorship standards and specify that detrimental authorship practices are always unacceptable.

The most powerful forces for counteracting detrimental research practices are beyond individual researchers. For example, journal and book publishers can adhere to high standards in reviewing and publishing research, or they can neglect standards and pressure authors in ways that

benefit only the publisher. Research institutions can teach and enforce integrity standards, or they can put financial considerations foremost. Scientific societies can define and uphold high standards that support integrity and reproducibility in areas such as sharing data and methods, or they can implicitly tolerate detrimental research practices.

The research enterprise can enhance its contributions to society in the 21st century by creating conditions that encourage results that meet the highest standards of integrity. All stakeholders must take deliberate steps to strengthen the self-correcting mechanisms and core values of research such as objectivity, honesty, transparency, fairness, accountability, adherence to standards, and openness.

—Marcia McNutt and Robert M. Nerem



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