Retract or be damned: a dangerous moment for science and the public

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Sweden’s Karolinska Institute, home to the Nobel Prize in medicine, found surgeon Paolo Macchiarini guilty of scientific misconduct. A subsequent district court case resulted in a suspended sentence of two years’ probation (doi:10.1136/bmj.01516). To Macchiarini’s critics this was an unduly lenient punishment for years of research misconduct and harm to patients resulting from the globetrotting experimentation of a “stem cell charlatan.”

Macchiarini had pioneered a regenerative technique that replaced damaged tracheas with tissue engineered ones. But he overstated his results, even lied about them. The district court’s verdict was overturned on appeal, the appeal court sentencing Macchiarini to two and a half years in prison (doi:10.1136/bmj.p1442). But the question remains as to why action against Macchiarini is mostly limited to Sweden when his controversial and discredited work extended to several countries and institutions.

Two troubling themes emerge from John Rasko and Carl Power’s examination of Macchiarini’s legacy (doi:10.1136/bmj.p1367). First is the apparent unwillingness of institutions to admit to wrongdoing by their staff. Even when allegations are proved after investigation, institutions are reluctant to act on evidence of scientific misconduct under their purview. By some estimates, a case of major scientific fraud occurs at every institution each year, yet we hear of cases only rarely.

The explanations are obvious enough. Institutions don’t want their reputations tarnished by public findings of wrongdoing, and the people complained about may often be litigious. None of this, however, serves the public. Without correction of the scientific record and transparency about misconduct, as is the case with Macchiarini, patients continue to be harmed. Self interest, unfortunately, may often be the prime motivator, which makes the argument for a national independent office of research integrity where one doesn’t exist.

Second is the unwillingness of scientific journals to retract seriously flawed data that mean the findings and conclusions cannot be relied on. When a decision to retract is finally made it may not be obvious from the journal’s website, and it is unlikely to be noted by other research websites and databases that host or mention the research paper (doi:10.1136/bmj-2022-072929). The result is that flawed research remains in the public domain unretracted, and retracted papers continue to be cited.

At the same time, however, calls for retractions and apologies have become ubiquitous and vexatious. When a reader or a lobby group disagree with an opinion or the tone of an article, an increasingly common reaction is to demand a retraction, an apology, or both. Sound research, commentaries, and journalism that deliver an uncomfortable message must be instantly erased from the scientific record, in some people’s opinion. When a complainant demands satisfaction, it isn’t by means of swords or pistols at dawn but by retraction.

Nonetheless, retraction is an important and essential tool. One of the unintended consequences of open access publishing and new publishing models is their heightened vulnerability to research misconduct and fraud, as recently emphasised by experiences at the open access publishers Hindawi and MDPI. All journals are vulnerable in this regard, even the ones with the most intense peer review processes such as The BMJ. The most vulnerable are those that, with dollar signs in their eyes, have misjudged the balance between quality control and speed and volume of publication.

Retraction is a serious business that affects careers and reputations (doi:10.1136/bmj.p1375). But it must not be avoided when the scientific record requires correction. Retraction for the right reasons is good editorial and publishing practice and must be embraced, because it demonstrates the primacy of the welfare of patients and the public. Retraction should not be seen as damaging or as something that must be avoided or delayed. The exact opposite is true. Prompt and transparent retraction of problematic research findings is the mark of a responsible publisher. An urgent change in mindset is needed.

BMJ, like any publisher, finds it hard to swiftly investigate research misconduct or papers that are seriously flawed by errors. Part of the responsibility here rests with institutions, part with authors and reviewers, part with publishers, and the remainder with funders who, despite being increasingly powerful, tend to be forgotten and remain silent when action to correct the scientific record is required.

The challenge is considerable. The current systems of responding to breaches of research integrity are flawed and inadequate. They are being overwhelmed by cynical publishing practices, a broken academic reward system, and a sharp rise in content fabricated by artificial intelligence, large language models, and research paper mills (doi:10.1136/bmj-2022-071517). These are dangerous times. A clear responsibility rests on the scientific community—journals, publishers, researchers, institutions, and funders—to act forcefully on behalf of the public good.

Governments must also provide the necessary governance mechanisms at the national level. Macchiarini’s case shows that we are a long way from learning from the historical failure of the scientific community’s response to research misconduct. It’s a failure that we perpetuate at the public’s peril.
1 Paterlini M. Disgraced surgeon Paolo Macchiarini convicted over experimental trachea surgery. BMJ 2022;377:. doi: 10.1136/bmj.o1516 pmid: 35724991
2 Paterlini M. Paolo Macchiarini. Disgraced surgeon is sentenced to 30 months in prison. BMJ 2023;381.
7 Limb M. Concussion in sport: better studies needed to assess long term health effects, experts say. BMJ 2023;381.p. doi: 10.1136/bmj.p1375 pmid: 37321610