Editorial

What has Science's open-access sting taught us about the quality of peer review?

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In October this year, Science published a journalistic investigation into quality of peer review in open access journals [1]. The results were sobering. Around 60% of all journals accepted to publish a research paper with most obvious and basic mistakes - in fact the whole paper, its data, authors and their affiliations were entirely made up by the journalist, John Bohannon, to expose poor peer review. The article has provoked a lot of media attention as well as a backlash from open-access publishers and supporters, who called it unethical, unsound and even accused the journalist of being racist (for making up authors with African names). But regardless of the criticisms, the paper's surprising findings stand and should be a cause of grave concern for science and science publishing: it shows that many - if not most - open access journals do not have a strict enough editorial and peer review process to catch poor research and flawed papers. The article intrigued me especially, as I commissioned a similar feature article for the website where I edit new and feature, SciDev.Net, which we published earlier this year [2]. I also had the idea of sending out fake and flawed papers to catch 'bad journals' who accept it, but the time and money needed to do this meant we ended up skipping the investigative part, and we based our article only on reporting interviews with people affected. The key findings were that this is a global problem with some journals prey on researchers going for their money but not providing proper peer review, and that pressure to publish draws scientists, especially in developing countries, to publish in such journals. Experts suggested investigation and regulation is needed to ensure proper peer review, but there was little indication that this regulation will happen any time soon. Another key reason for not sending out fake papers were concerns over how to do this ethically and legally - in fact, the prospects of being sued by journals or their publishers for even talking about this issue meant that we had to be extra careful and run the article by media lawyers, as well as amend some sections and still accept some risk of being sued. Bohannon, in his recent interview with The Scholarly Kitchen blog, says his investigation, too, was initially held back by an editor who feared a lawsuit [3]. And here's the thing: there is a huge number of journals and publishers out there doing a poor job indeed, publishing suspect science and some charging scientists money for it, and yet this is not illegal - and there is no national or international body that can order such journals to shut down. What they do is bad for science, good for publishers who make money off it and even good for some scientists who choose to publish there simply not to perish - rather than having any significant findings to communicate, and yet it is not against any law to do so. Yet journalists wanting to report on this issue fear being sued and are being held back from even investigating the issue. This is why I think Science's article is so important: it was brave enough to investigate this issue and expose bad practice even though the prospect of a lawsuit was very real along the way [3]. This is what real journalism is about: telling stories that someone somewhere does not want you to tell; and seeing it done in science, where we rarely have investigative stories is especially satisfying. And even after this expose there may be no consequences for most of the journals and publishers. Indeed, apart form InTech's (Rijeka-based publisher) International Journal of Integrative Medicine, which closed down as I reported at Retraction Watch blog [4], Bohannon says he is not aware of any other closures [3]. In the legal void in which anyone can set up a 'scientific journal' online and start charging scientists for 'publishing' there it is up to national and international grant giving bodies and funders to act to exclude journals with poor peer review from being accepted in scientists grant, job and promotion applications. Science's investigation included most - or all, as Bohannon claims - of open access publishers that publish in English and in sciences (such as biology, medicine, chemistry), targeting 304 journals many of which

were listed in Directory of Open Access Journals, and some, tellingly, in Beall's List of predatory publishers. This left out thousands of journals that publish in local languages, including many in our region of South-East Europe. Croatia alone, has 343 academic journals listed on the central portal of Croatian scientific journals - Hrčak [5]. Most of these are open access and funded by the government, yet scientists often criticise many of them for being a waste of public money and dumps for bad science that cannot be published in better international journals [6]. Quality of peer review, especially in domestic language is also brought into question [6]. Similarly, in Serbia, SCIndeks lists 411 academic journals [7]. Yet, Centre for Evaluation in Education and Science, which runs the index together with National Library of Serbia, found recently that up to 11% of all articles published there contained some sort of plagiarism [8]. The centre itself admitted later that "after about one-year time we have to admit that the expected response by journal editors is still missing" and itself it only excluded two of the biggest culprits out of SCIndeks [9]. Similarly, my own journalistic investigation into what how, if at all, plagiarised papers are then retracted from journals in Serbia [10] and Croatia [11] shows a lack of standard practices and wide variation in retraction practices - often not following internationally accepted guidance, such as those set by COPE. If journals fail to detect plagiarism, which is a routine procedure these days, one wonders what the state of peer review and detection of other forms of misconduct may be. Indeed, a more recent study by the same centre found what is calls"a citation cartel created for manipulative purposes by two predatory journals" published by a publisher based in Bosnia and Herzegovina, but where many Serbian researchers regularly publish, in what the study called a cartel (i.e. scientists know they are doing a bad thing, paying public money to publish in their friends' journals, and citing other studies in those journals to artificially boost their impact factors) [12]. What these examples highlight is that by no means has the publishing misconduct - or at least suspect practices - bypassed our region. In fact, small scientific communities, peer review in local languages, and lack of publishing and scientific expertise are all likely to exacerbate the problems in conducting proper peer review in small and local journals. Indeed, out of five journals in the former Yugoslavia, which Bohannon targeted, only one - the journal you are reading - has recognized the problems with the fake paper and decided to reject it. The other four: International Journal of Integrative Medicine (In Tech, Croatia), Journal of Plant Biology Research (International Network for Applied Sciences and Technology, B&H), Acta Facultatis Medicae Naisensis (Medical Faculty of University of Niš, Serbia), and Macedonian Journal of Medical Sciences (Institute of Immunobiology and Human Genetics in Skopje, Macedonia) all accepted it and if this was not a journalistic investigation they could have all be by now had published similar fake papers. When asked about this case, the editorial offices of the Journal of Plant Biology Research and Acta Facultatis Medicae Naisensis did not reply to my e-mails, which is discouraging. It shows how little transparency some journals are prepared to have in their work, and to what extent they can simply ignore such exposes by even the venerable *Science* magazine. The answers I received from the other three journals' editorial offices shine some light on the issues in the region [13]. Editor of the Macedonian Journal of Medical Sciences, Professor Mirko Spiroski, PhD, MD, told me his editorial team and peer reviewers did not have expertise in the field the fake article was in, and after seeking ten peer reviews and only receiving one back (a single line review), they decided to accept the paper nevertheless. InTech basically said they gave their appointed scientific editors, who were not part of the firm, full freedom in peer review and then blamed the mistake on them. This shows a lack of in-house expertise in some journals and a worrying degree of relying on outside editors or peer reviewers with little oversight to make the decisions on whether to publish a paper or not. In contrast, the editors of this journal, Professor Bakir Mehić, PhD, MD and AminaValjevac, PhD, MD highlighted the value of in-house pre-review check of papers, before sending them out to peer reviewers. As the world continues to debate the merits of, and potentially better ways of doing, peer review (e.g. post-publication peer review, Peerage of Science's or LIBRE's community peer review before it reaches journals), we should take care to ensure proper peer review in our journal now. It is not rocket science and it has worked for centuries now. And national bodies and funders should recognise good practice and reward hard-working and ethical editorial offices to stimulate excellence and better peer review, while at the same time punishing the misconduct and being quicker and more proactive in striking off known offenders off citation indices and lists of journals accepted for official grants and job promotions.

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