

# Research integrity: which way should be followed?

*Integridade em pesquisa: quais caminhos devemos seguir?*

*La integridad en la investigación: ¿Cuáles caminos debemos seguir?*

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The 4<sup>th</sup> World Conference on Research Integrity (WCRI), that took place in Rio de Janeiro in May 2015, brought the national and international scientific community to discuss an important issues and concerns related to good practices on research.

The protagonists involved in this process - funding institutions, research institutions, universities, research groups, individual researchers, authors, reviewers and editors - need clarification of their respective roles focusing on the culture of research integrity. In Brazil, few institutions have provided tools to detect an unintentional or intentional researchers "misconduct" as part of research production and scientific communication. For examples, in 2011, the São Paulo Research Foundation (FAPESP) came out ahead with the Code of Good Scientific Practice<sup>1</sup> and recently the National Council of Technological and Scientific Development (CNPq) provided Directives for Research Integrity that included recommendations for someone who wishes to apply and manage research Agency funds<sup>2</sup>. It also pointed out the Agency policy related to the requirements for disseminating research results.

For the Universities urges the need to adopt clarifying policies on sanctions imposed on the misconduct such as falsification and fabrication of data, plagiarism, image manipulation and more. It is an institution responsibility to promote the establishment of a commission for research integrity, to judge whether there was fraud and determine the appropriate conduct in these cases, considering the ethics governing the scientific community<sup>3</sup>.

In Canada, if a researcher has committed a serious misconduct, he is prohibited of receiving any funds from research agencies indefinitely, and become aware of this punishment before the start of the survey<sup>4</sup>. Transparency in this process is fundamental.

The first coherent attitude towards this background of high competition and perverse incentives that can induce undesired slips for the credibility of science, would be an investment in compulsory education program to students in undergraduate, graduate and researchers. Two largely known are the European program Epigeum<sup>5</sup> used by over 230 universities in over 27 countries, and the American program from the University of Miami, the Collaborative Institutional Training Initiative (CITI)<sup>6</sup>.

The President of the Brazilian Society for the Progress of Science, Professor Dr. Helena Nader<sup>7</sup>, during the opening ceremony of the 4<sup>th</sup> WCRI highlighted that the university should create a research integrity environment. She also emphasized "the need to work this theme since high school education, as by the use of technology, many students copy articles from the internet without any reference and reproduce them in full text without knowing that this constitutes plagiarism."

In this way, we need to be proactive, and the actions must precede the final product, so, the dissemination of the research results can be translated to the articles.

It is also important to note that errors are part of the production of science, but negative results are rarely published, for example, when referring to clinical trials, 50% are not published<sup>8</sup>. A prestigious international journal showed in a recent study that only 6/53 of the published methods are replicable.

It is also interesting to know that the reason for and time of manuscript retraction were: 25% of plagiarism is identified six months after publication, and 80% after three years. Most of the slips are caused by serious errors of statistical interpretation, 21% plagiarism or self-plagiarism, 10% double publication, 7% multiple problems and 4% other events. We need to reflect that among 40% of serious errors considered on publications, 23 occasions occurred to data falsification/fabrication, 13 times occurred due to image manipulation, legal problems or without approval of the Research Ethics Committee<sup>8</sup>.

The editors are the ones that detect the illegal publications in 75% of cases, 50% the plagiarized authors, in only one case the Publisher, and in another the author's institution<sup>8</sup>. The referees play a fundamental role in this responsibility that should be shared with the editor, becoming aware of this background and pointing to the editor any suspected misconduct in the revised article.

As a partial solution the PLOS ONE publishers and f1000 have innovated with a wide open process, wherein the article is available online, all involved can give its opinion (including volunteer experts), pointing out problems in order to improve the article or detecting failures. The purpose is the social control of research. Perhaps this is the way to minimize the serious consequences of lack of integrity and misconduct. The world needs to go further and Brazil must encourage these "care" to the best practices in research<sup>9,10</sup>.

In summary what we can do to increase the actions towards Integrity in Research:

- a) Promote the training of institutional commission of integrity in research must develop projects aimed in training researchers at all levels and guiders about the theme;
- b) Install courses of different levels and mandatory to all who develop research activities;
- c) Implement a research integrity policy in health, education, including educational institutions, research and scientific journals. In summary what we can do to increase the actions towards Integrity in Research:

Nurses, by their professional *ethos*, have a duty to care for research integrity, as He/She has in the health assistance and nursing care.

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