



Editorial

Building a culture of scientific integrity among the academic and research communities of Latin America



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Making science is not a straight road, nor is it always about publishing positive results or glorious findings. Helen Wilkes from the Centre for Higher Education Research and Scholarship, Imperial College London, used the metaphoric illustration of the “scientific iceberg” [1] to show that at the tip are the apparent successes of science, but at the bottom, we find challenging situations such as low salary, precarious laboratory infrastructure, funding cuts for research institutions and universities, parasitism of private associations over funds destined for research, political manipulation of scientific information, and above all the strong influence of funders on speakers, researchers, institutions, publishers, and medical or scientific societies [2]. Unfortunately, these negative traits are more frequent in low and middle-income countries, including those of Latin America, where academics and researchers struggle against them on a daily basis [3]. In general, the lack of national scientific culture, limited interest in postgraduate research training, low governmental investment in research and technology, and few regional funding agencies are some inconveniences that jeopardize building a solid culture of scientific integrity [4,5].

In contrast, the United States Government has tackled this important aspect through the “Federal Scientific Integrity Policies”⁶, while European academies have developed “The European Code of Conduct for Research Integrity”⁷. Other countries share this initiative, such as the United Kingdom, founded the “UK Research Integrity Office.” Similarly, Japan and Canada have published their policy about ethics and preservation of science [8,9]. Although these initiatives have not yet been widely replicated in Latin America, the efforts of some countries are significant; for instance, the Interdisciplinary Center for Studies on Bioethics (CIEB) of the University of Chile is dedicated to training Latin American professionals in responsible conduct of research (RCR) [10].

Building scientific integrity involves multiple issues such as core values, appropriate use of research funds, conducting research under ethical guidelines and with social responsibility, avoiding conflicts of interest, and preventing research misconduct [6–9]. Researchers, mentors, junior researchers, and science administrators must regulate their direct or indirect scientific activities under fundamental principles, such as *Honesty*, *Reliability*, *Respect*, and *Accountability* [6,7].

Notably, one controversial topic is managing conflicts of interest and specifically regarding the relationships with the pharmaceutical companies. In the last decades, Latin America has become an attractive venue for the pharmaceutical industry to produce medicines, conduct clinical trials, and market new drugs [11]. Conflict of interest may occur if medical professionals who participate in these multi-center and sometimes multi-national clinical trials or prescribe certain drug brands are later invited as speakers by medical societies and associations without presenting a disclosure or conflict of interest statement. Therefore, as part of the warranted scientific integrity, keynote or plenary speakers should always declare their relationship (research, consulting, or speaker) with companies in platform presentations, scientific articles, and books [12,13].

In medicine, building a culture of scientific integrity would bring many benefits, particularly for making clinical practice guidelines (CPG). In this sense, it is quite common in Latin America that purposefully trained clinicians are sometimes invited as speakers at medical meetings to talk about the growing knowledge even though they are not scientists who publish in the field. This action leads to only echoing the evidenced-based medicine taken from other regions and populations and reproducing foreign guidelines without generating our own research-based evidence. For this reason, we have proposed that the CPG in the field of Hepatology for the Latin American countries contain as much regional published scientific evidence as possible [14]. Obviously, this requires that science education be cultivated since childhood so that graduate students can develop their creativity, critical thinking, problem-solving, and teamwork [15,16] to do sound science and propose new theories based on the features of the Latin American populations.

Furthermore, a scientific environment free from political or company pressure will allow better cross-sectional, follow-up, clinical, or cohort studies focused on prevention models rather than promoting medical treatment with drugs (promoted by the pharmaceutical companies) [17]. The findings of these studies could be analyzed and discussed by regional medical-scientific academies. This scientific evidence will help health professionals make sound clinical decisions,

choose the best treatment strategies, introduce new technologies for diagnosis, and improve patients' quality of life. Finally, strengthening medical societies under a free scientific culture will allow countries to feel prepared to face future challenges and achieve excellence in medical practice. New initiatives are warranted to create research integrity policies and agencies throughout Latin America at all levels of responsibility.

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Alexis Jose-Abrego
Arturo Panduro*

Department of Genomic Medicine in Hepatology, Civil Hospital of
Guadalajara, "Fray Antonio Alcalde" and Health Sciences Center,
University of Guadalajara, Guadalajara, Jalisco, Mexico

*Corresponding author: Arturo Panduro, MD., PhD., FAASLD,
Department of Genomic Medicine in Hepatology, Civil Hospital of
Guadalajara, "Fray Antonio Alcalde" and Health Sciences Center,
University of Guadalajara. Calle Hospital # 278, Col. El Retiro, 44280,
Guadalajara, Jalisco, Mexico. Tel: (52) 33 36147743.
E-mail address: biomomed@cencar.udg.mx (A. Panduro).