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Editorial

Transition towards the production of an increasingly open science

Transición hacia la producción de una ciencia cada vez más abierta

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Between March 14 and 16, 2018, the University of Medical Sciences of Ciego de Ávila hosted the Fourth National Meeting on Scientific Publishing in Health Sciences, where directors of the Provincial Centers of Medical Sciences Information, representatives of the Editorial Committees of scientific journals, and the Publishing Center gathered.(1) This was the first time we shared how open science involves all dimensions of research, which will require the integration of journals and progress with a renewed approach to functions, policies, and management, as an inherent practice of communicating scientific results, thus favoring the transition to open science.(2)

Seven years later, the editor-in-chief of the Mediciego Journal requested an editorial on open science—an opportunity to analyze its adoption in the National Health System, supported by the implementation of the 2021 UNESCO Recommendations.(3) These recommendations highlight the importance of open

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science as a fundamental tool to improve the quality and accessibility of research, in order to close gaps in science and technology and promote the right to access science.

The UNESCO recommendations are guidelines intended to influence national laws and practices; therefore, it is the responsibility of the Ministry of Science, Technology, and Environment in Cuba to establish standards and public policies to implement these recommendations in the academic and research spheres. Open science seeks to ensure that scientific findings and information are accessible to all, facilitating collaboration and the use of research.

Information and scientific publishing systems have the duty to promote open science, which can increase efficiency, transparency, and replicability of research. A transformation of the research system is required, not only in what is investigated, but also in how it is investigated, thus pursuing a paradigm shift in the way science is conducted.

To facilitate open data exchange, it is essential to guarantee the quality of metadata, which implies promoting collaboration in data availability and usability. Although progress has been made in openness principles, there is still a lack of knowledge on how to improve in this area, and it is urgently necessary to develop capacities in data management.

Scientific data must adhere to the four FAIR principles (findability, accessibility, interoperability, reusability). It is important to disseminate these principles within the research community. This approach seeks to make data easy to find, access, integrate, and reuse, which concerns both researchers and editors. In addition, it is essential to promote common standards to improve interoperability in the health system. All stakeholders in health must contribute to creating integrated and efficient systems that align policies and promote investments in technological infrastructure, as well as in professional training.

The Pan American Health Organization recently published the “Catalog of Interoperability Standards. A practical and detailed reference for their identification, selection, and use in health information systems”, which we recommend as a reference work for the effective selection and application of interoperability standards in the health sector.

Likewise, supporting the use of open repositories is key to facilitating the dissemination of academic content and preserving research. Repositories must be accessible and allow self-archiving, although it is necessary to understand that this does not replace publication in scientific journals. However, the use of repositories faces obstacles, such as data sensitivity, the lack of a self-archiving culture, and limited

understanding of the benefits of open access. To overcome these challenges, investment in infrastructure and digital skills is required.

Finally, it is necessary to contribute to sharing resources with a wide range of collaborators and to make the scientific process more inclusive and accessible to society. Improving trust in science by making it a global public good is fundamental. Scientific communication evolves through the use of technological and legal tools that protect authors' rights and address the challenges of open science, which requires the definition of public policies that promote open access and the reuse of results.

It is our duty to be consistent with the adoption of the recommendations by our country, as a UNESCO member state, by applying the culture and practice of open science, and ensuring that the implementation process is as inclusive, transparent, and consultative as the process that led to its development. Promoting our national open science policy is a necessity,[5] and Mediciego embraces this endeavor.

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Roberto Zayas-Mujica: conceptualization, methodology, resources, and original draft writing.

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