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EDITORIAL: TECHNOLOGY, INNOVATION, AND HEALTH

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This issue of *Technology and Innovation* focuses on health, technology and innovation. The aim of this issue is to contribute to the multidisciplinary study of health and well-being by bringing together articles with a wide range of viewpoints on health problems and solutions. The articles address health-related issues in three main ways: by presenting advances in technology that have led to the amelioration of ailments and the improvement of the patient's quality of life; by detailing the social, cultural, economic, and political factors that prevent patients from accessing medical information and existing technologies; and by proposing innovative mechanisms for promoting the participation of individuals in health interventions.

We are pleased to have the USPTO publish another article in this issue of the journal. Our lead article by Shukla presents the 8th million patent issued in the US, a patent for a Visual Prosthesis called Argus® II, which was designed to increase the visual capacity of people who are blinded by outer retinal degeneration (1). The author uses the case of Argus® II to illustrate the process behind the patenting of medical devices in the US and argues that with faster and more efficient mechanisms for granting patents, benefits in commercialization can be granted to the health care industry.

Medical technological innovation is discussed by Guo in his presentation of Wheelchair Taijiquan, a wheelchair that was designed to make Taijiquan (a Chinese martial art) available to people with ambulatory impairments. The wheelchair allows the user to make the turns that are necessary to fully engage in 13 postures of Taijiquan practice. An interesting aspect of this article is the author's presentation of the user's perception and experiences with this new technology and the ways in which it has acted as a "tool for empowerment." Guo found that before this technology was made available, many people with ambulatory impairments did not engage in physical activities of any sort, severely reducing their chances of rehabilitation and social engagement. Wheelchair Taijiquan appeared to represent an effective way to promote physical fitness while giving the user a strong sense of accomplishment.

Two other articles remind us that the improvement of the health conditions of the population is not only dependent on technological innovation, but is also related to the elimination of

the obstacles patients face while attempting to access existing medical technologies. Lopez and colleagues carried out a study on the services provided to HIV-positive women within a specific community and found that even though mechanisms are available for preventing mother-to-child transmission (MTCT), many women are not aware of these options. The authors found that the misinformation of patients was produced by the fact that the services each organization provides are partial and patients are referred to other facilities without a complete medical history or the possibility of follow-ups. Fractures in the communication between the organizations further complicate this point as patients are not informed of all of the options for preventing MTCT at their disposal. Furthermore, the authors found that many HIV-positive patients are forced to deal with the stigma of this disease, and health care professionals' attitudes and behaviors towards them is often influenced by this negative representation.

The article by Vindrola-Padros and colleagues highlights similar barriers to care in the case of oncology patients requiring fertility preservation technologies. The authors review studies that have found gaps in patient-provider communication where oncology patients are not always properly informed of the risk medical treatment will have on their fertility and the technologies available for its preservation. The article also discusses the different ways in which social categories such as class, ethnicity, gender, and age act as barriers to the use of fertility preservation technologies, leading to disparities in the possibility of future reproduction. An interesting aspect of the article is the section where the authors present the different nongovernmental organizations (NGOs) that have been created to help patients deal with the problems they face while attempting to access medical treatment and the role they have played in raising awareness and reformulating policies. The authors conclude from this review that further qualitative research on the experiences of oncology patients dealing with the potential loss of their fertility is required to identify additional obstacles for accessing fertility preservation technologies and developing ways to reduce health care inequalities. They argue that the needs, desires, and concerns of this specific patient population must become a central topic in future research in the field of oncofertility.

The article by Wells and colleagues has a similar aim in the sense that it focuses on reviewing the different strategies that have been used to promote peoples' participation in health research in India. According to the authors, the improvement of health is reliant on the active engagement of the community, from initial research design stages until the implementation of health interventions. In their review, the authors found that most health-related studies in this region do not use this approach. The few that have sought community participation have focused on health promotion, sexually transmitted diseases, and adult populations. The authors conclude that this represents an evident limitation in the information available on community-engaged research in India and propose that the future use of this approach in health research could represent a significant contribution in the improvement of global health.

This issue of *Technology and Innovation* brings together authors from multiple fields and institutions who are interested in exploring different alternatives for the improvement of health worldwide. Their articles highlight the changes that need to be made at a global level to enhance technological innovation, reduce inequalities in access to medical technologies,

and promote community engagement in health research and development. We would like to thank the authors as well as the peer reviewers for their contributions. Hopefully, this will be the first of many issues on technology, innovation, and health in this journal.

REFERENCE

1. Greenberg, RJ.; McClure, KH.; Roy, A. Visual prostheses. United States Patent and Trademark Office (USPTO). Patent No. 8,000,000 B2. 2011.