

# Editorial

Biomedicine is undergoing momentous evolution in these early years of the third millennium. Naturally, the dental sciences are not excluded, with subtle but decisive developments concerning quality in clinical practice, multilevel training for professionals (dentists, paramedics, residents, lecturers and students in continuing education in medicine, etc.), applied and basic scientific research, technology research and materials science. Patient awareness is also of growing importance. A basic knowledge of the signs and symptoms of both common and rare diseases is essential for the general public, enabling prompt action to be taken when necessary. This is an important tangential aspect of scientific research, which is stimulated by the social needs of populations in northern countries. Patients (families and schools, in the case of children) thus need to be involved in issues such as public health and the spread of monitoring and rapid response practices.

The present issue represents part of the best international - predominantly European - scientific publishing precisely because it highlights the scientific and technological originality of research in this sensitive and continuously developing sector. Its perusal, consultation, and, it is hoped, its rapid inclusion in international databases (hopefully the ISI, being so far the most prestigious) will boost its use and subsequent discussion among the international leaders in this scientific sector.

For several years, the "Sapienza" University of Rome's Department of Oral and Maxillofacial Sciences and the Istituto Superiore di Sanità (ISS - the Italian National Institute of Health) have collaborated, through a scientific publishing training program, to promote the importance of the international diffusion of original data in the areas of science, epidemiology, medical ethics and the translation from preclinical to clinical research. For example, we have constantly stressed the importance to Italy of data sharing: making our best clinical and methodological data available to the broadest international community (including more and more emerging economy-BRIC countries). This seems both necessary and, indeed, urgent, to strengthen the standing of Italian universities and research groups which in some regions still need to develop a more international outlook, including through the good practice of scientific publishing. Publishing is in fact of growing importance. Scientific books, articles and papers are made immortal by the creation of scientific libraries as cradles of knowledge and guardians of ever-improving methodology. However, the advent of computers, followed by the Internet, has given rise to strong bibliometric currents in scientific publishing: evaluation of both the number and, it is hoped, the quality of citations of individual authors and research groups provides a "cold" evaluation of the importance, relative persistence and citations durability of a given paper. A "*publish or perish*" attitude is in fact currently flourishing among Italian ministerial decision-makers, albeit in a debatable and perhaps misleading form.

With respect to biomedicine in general, this issue forms part of an ambitious attempt to strengthen excellent clinical practice, particularly in less industrially and economically privileged European countries, with publications meeting the highest international standards. Associationism in international science reflects and is reflected by scientific publishing, as is evident from the history of at least the last two centuries of contemporary scientific thought. As an aside, this seems a good opportunity to lament the excessively fast globalization of scientific publishing by both professional bodies and specialist publishers, bypassing Europe and thus hindering the construction of preeminent European networks to attract funding for research and education.

In Italy, joint initiatives between the ISS and the world of academic clinical research in orthodontics, whose heart is the Department of Dental and Maxillofacial Sciences in Rome, have been ongoing for the last 15 years. These have revealed an important common objective: people (both young and not-

so-young) who choose a profession in healthcare for its social prestige and necessity, and because it provides great satisfaction and social respectability. This often complements students' spontaneous altruism, as demonstrated by the growing number of aspirants to some medical professions and the direct experience of many researchers of the cultural and ethical prestige conferred on the medical profession (not excluding the veterinary sciences, in some respects) by the most capable secondary school students. However, it is essential that the university system - seemingly even more than the basic research system - trains new "armies" of health workers whose Hippocratic mission is flanked by awareness of the need to enter a highly competitive international context. This can be done through the quality (and unfortunately also the quantity) of outstanding published papers: whose authoritativeness, paradoxically but increasingly, reflects on the prestige of the medical institution, with respect to both funding of its clinical research facilities and its national and international visibility, as is often demonstrated by patient demand. In short, a clinical institution which publishes regularly in leading international journals will enter into a virtuous circle enabling its self-empowerment. Obviously, not all facilities will be able to boost their international standing quickly and easily, while others that have already reached this level may find it difficult to maintain adequate bibliometric standards due to logistic difficulties or the inevitable generational turnover. However, such an undertaking must not be avoided and can be achieved with the help of European and international networking, good publishing practice and progress in perfecting bibliometric evaluation methods.

Just as an ability to reach a prompt diagnosis is essential for clinicians, so do leading researchers and forward-thinking lecturers need education in a complementary field. The practice of studying not only medicine but also for a degree in dentistry or a doctorate in medical research (sometimes with overlapping residency courses, at least in the United States with their MD PhD programmes) is ever more frequent in many foreign institutions. If we look at the etymology of the word "diagnosis", deriving from ancient Greek, we are reminded that it means knowledge through a series of elements. Fast diagnostics, experience and a certain intuition, probably related to natural talent combined with clinical practice alongside experienced professionals, translate very well into "diagnosis". Similarly, PhD, the standard term in English for a research doctorate, stands for *Doctor of Philosophy*: that suffix -sophy means wisdom, common to all humans, and thus by definition common to all scientific disciplines. If philosophy is *scientia scientiarum* (the science of sciences), the doctorate has elements of wisdom, scientific logic, and now also publishing awareness, that crosses all scientific fields and sub-disciplines. It is therefore hoped that the present issue galvanizes its readers to pay attention both to diagnosis and the need to participate in the progress of biomedical knowledge that is ever more reflected in such a translational activity, from the laboratory bench to the sickbed; or, vice versa, when clinicians turn to researchers, to stimulate the scientific curiosity and passion of the latter with intriguing therapeutic issues.

It is an adventure in which many of us are now involved, each in line with the core mission of our respective institutions: and it is hoped that this joint effort will act to productively boost the scientific and clinical potential of our diverse specialties.

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