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Challenges of health education in the 21st century

Jaime Restrepo Cuartas[1]

1 Médico Cirujano de la Universidad de Antioquia. Actual Rector de la Universidad de Santander – UDES. Bucaramanga, Colombia. Autor de Correspondencia. E-mail: jaimeresc@gmail.com
https://orcid.org/0000-0003-0079-7649

"It is far more important to know what person the disease has than what disease the person has" Hippocrates

The world of health education should keep pace with social development, at the risk of not reaching maturity but obsolescence. We are used to certain educational models resulting to be traditional and we continue to cling to them as if nothing had happened. The University locks itself in its teaching-learning circles in the middle of an increasingly complex system, where everything changes surprisingly fast. Educational innovation should shake us up. The advantage that health programs have had is that education is patient-centered, that is, that practice exercise, a necessary element of comparison is not alien to the student of these disciplines from the first years, which gives them a competitive advantage over professions in which it is still considered that practice should be done at a later stage in the final year of their degrees.

To standardize processes within the traditional framework and to use techniques applicable to patients with specific algorithms, after many years of experience on the edge of the patient's bed, the health education has opted to design "health care guidelines" or "clinical practice guidelines" that young professionals follow strictly, like following a manual, to search for good results; but these are not always the expected ones, since they become into medicine challenges acting on more diseases but not on patients since the found evidence, which must supposedly be the same, results to be different.

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In this process, it is observed that many patients with the same disease do not respond in the same way to the use of the different drugs or technologies applied, even if these are used in patients whose evolutions should be similar. In addition to this, often surprisingly, it does not depend on the effort made by health professionals and even on the knowledge acquired through experience. It is possible that two female patients of similar age with a breast cancer detected at an early stage, with the same trained surgeon and applying the same refined technique, do not have the same evolution. One of them may be cured five, even ten years later, and the other may have died a few months after the treatment has been applied.

Our health education system, which was the first in Latin America to develop health promotion and disease prevention with the National School of Public Health, today a Faculty at the Universidad de Antioquia and which provided successfully education to the first health professionals in the countries neighboring Colombia such as Cuba, Chile, and Mexico, ended up not applying the model under the Law 100 of 1993 and turned health care into a welfare and hospital model, which despite being universal, is too costly and ineffective for patients arriving with advanced diseases, many of them terminal diseases.

The scientific advances and technology of recent years have overcome these dynamics because the reasons why patients respond individually to the conditions and treatments they have undergone are better understood now. But we did not see that so clearly because of the enormous costs of drugs and the application of new technologies, but as the costs decrease due to market effects, the panorama changes. Today, advanced research and top technology are the mainstays, which is why the era of the genomic revolution and personalized medicine are starting now[1].

In the development made in recent years, specific antigens, molecular markers, cell receptors, DNA genome sequencing (both nuclear and mitochondrial), different protein expression have been discovered, as well as the specific molecular pathways and biological or bioinformatics information and phylogenetics have been determined. All this changes the concepts of microbiology, pharmacology, physiopathology, immunology, and epidemiology we had so far.

There is a different way of observing malignant tumors with the advances so far. e.g. in the detection of melanoma, prostate cancer, breast cancer, colon cancer or leukemia which obliges us to develop different therapeutic methods[2]. Likewise, something similar occurs in diseases that have different expressions such as asthma, arthritis, cardiopathies, or chronic obstructive pulmonary disease caused by tobacco. In daily life, there are asthmatics whose illness disappears spontaneously, phenomena that can be observed with the existence or not of eosinophilia[3], or chronic smokers that do not suffer from the disease due to the effects of smoking. Drugs act differently from one patient to another, for which it is established that it may be due to an inherent factor in the polymorphism of nucleotides.

Now remember that there is a new theoretical basis in the knowledge of molecular mechanisms

in the entire health-disease process that obliges us to be more accurate in diagnosis to offer better therapeutic pathways, to approach pharmacology in a differential way based on the results of individual responses, to observe both microbial and drug resistance, disease recurrences, the possibility of genetic manipulation, the different protein expressions, and the current role of microorganisms, beneficial or not, that coexist with man.

Personalized medicine obliges us to establish a new health care model where the diagnosis is accompanied by the genomic sequencing and the early detection of diseases through molecular markers; besides an inquiry into the environment in which the patient lives, which can also serve as predictive method to establish health promotion and disease prevention campaigns and the application of specific healthy lifestyles based on the particularities of each individual, while searching for a community and family approach based on the so-called 4Ps: Predictive, preventive, personalized, and participatory medicine[4]. This can lead us to a new way of health education.

Therefore, it is necessary to consider an approach that mixes the most advanced research in genomics and the application of advances with the use of molecular markers to give precision to diagnosis with predictive capacity and an emerging focus on primary care and family medicine on the disease prevention and management[5], which determines the susceptibility of individuals, families, and communities, and then gains strength as never before in the teaching of genetics[6], so - mething relatively neglected in health education today.

Conflict of interest: The author declare no conflict of interest.

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