Education in medical students
The transition from the university to the hospital

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Abstract

The high-quality accreditation granted to universities for their medical schools does not represent the quality of education during practical rotations in the hospitals. Due to the importance of this phase in the medical students' academic process, a change in the educational process must be considered. New pedagogical models founded on problem-based learning and using new technologies to achieve optimal medical training must be explored. **(Acta Med Colomb 2021; 46. DOI: https://doi.org/10.36104/amc.2021.1886).**

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Introduction

This article seeks to describe the situation of medical education during the educational cycle in clinics, hospitals, and outpatient settings (the outpatient department and the community). Despite the existence of many medical schools with high quality accreditation, there is no guarantee that the quality of education will be maintained once students transition from the university classroom to the hospital learning environment. The education of the country's medical students needs to be reinvented; this is a real challenge considering that the current health system is the students' educational setting, and it is also a challenge for the healthcare institutions, universities and professionals who take on the teaching role to guarantee a suitable education. It is imperative that structured and innovative pedagogical models be applied, and not continue with traditional models. We present a few proposals that could lead to fulfilling the competencies of a physician in training.

Medical education beyond the university

The national availability of medical programs in Colombia has increased over the last few years, going from 21 in 1992 to 59 in 2011, and although in May 2017 there were 58 active medical programs, this amounts to a 176% increase since the passing of Law 30 of 1992. This undoubtedly entails the possible opening of low-quality medical schools. Legislative modifications in terms of education have led to these medical schools obtaining high-quality accreditation certificates from the Consejo Nacional de Acreditación [National Accreditation Council]; this has alleviated this situation in these programs, and although by 2017 only 50% had accreditation, this certification has become a very important instrument for promoting and recognizing educational quality (1, 2).

Indisputably, the quality of medical education does not depend exclusively on the university; a large part of the academic processes for physicians, especially in the final part of training, occur in hospitals with which there are teaching-service agreements. Thus, the universities' efforts to obtain high-quality certifications end once the medical student enters a healthcare institution. The educational models in these settings are not standardized, and while it is true that these hospitals have education departments, especially those that are certified as "university hospitals" or are in the process of obtaining this accreditation, the best educational model for students in this academic period has not yet been determined, and the pedagogical processes are subject to the medical area in which the student is rotating. In addition, there is not always a real university-hospital interaction, which definitely does not favor the students' training (1).

Medical training: a social commitment

There is a direct relationship between the setting in which the medical professionals develop and the discipline's praxis; the goal is to train a physician who is able to practice according to the parameters recognized by the long-standing medical tradition, but using current cognitive and technological resources (3). A good health system and an appropriate teaching program should be closely tied to the country's epidemiological, social, economic and cultural characteristics (4). Unfortunately, we lack a good healthcare system as well as an appropriate educational program for physicians in Colombia. Therefore, we must break away from our country's medical education paradigms. The process is not easy, considering that the academic setting for the practical period is an already disfigured healthcare system with teaching physicians who must deal with this system while trying

to share knowledge, but without having the training to do so. A change in education must be offered, considering that this training period in the physicians' academic process is the most significant time for the final professional result, entailing a high responsibility to society. The training profile of the country's medical students definitely merits reflection (1).

The teaching physician

It is well known that it takes more than being a good physician to be a good professor of medicine (1), and in the current context in which medical professors' role in society is increasingly disregarded (it no longer has the social recognition it historically had), they must not only deal with disadvantageous economic conditions and types of contracts, but they are also forced to work within a deficient healthcare system, and it is the healthcare workers who must face the healthcare users' dissatisfaction, making the physician-patient relationship more difficult. Coupled with this is the low value placed on the knowledge acquired; a graduate degree does not always entail greater financial remuneration or professional advancement. Effort is expended in finding physicians who provide efficient humanized care, with problem-solving capacity, at the lowest possible cost, and who also have training in teaching. This means that the physicians end up exposing themselves to a "required" teaching activity without having a real vocation or training for it, if they are hired by a hospital with a university focus. Thus, the students' training is left to the mercy of physicians who, while they may be very willing to teach, do not have the adequate training for transmitting knowledge, and the students are faced with multiple difficulties which translate into an unlearning process. To assume that being a physician means that you are competent to teach is a thing of the past (5). Medical schools must evolve towards the professionalization of their professors, which entails an effort to make a formal connection, with academic, economic and personal incentives.

Thus, the various educational approaches used for training physicians arise from daily practice - which is far from being a formative setting, as it is more operative, without autonomous decision-making and subject to the logic of productivity (3). These can hardly be categorized as clearly structured pedagogical models, but are rather a continuation of the methods used by their own trainers; teaching is conducted according to tradition, which seeks to have students memorize concepts in order to always be prepared for the specialist's questions, or, at times, carry out administrative tasks. Even worse, the students' involvement in some hospitals does not have an academic vision, per se, but is rather a financial survival strategy, either because the educational institution contributes money or equivalent goods and services to the healthcare institution, or because the students contribute their work to lower costs (3). The challenge of finding a physician who is also a teacher, in circumstances with limitations such as we have today, is enormous.

A new vision for medical education in Colombia

A teacher is wanted who is also a good physician; is familiar with the teaching and learning processes; knows how to use the existing methods appropriately, as well as the new information and communication technologies (ICTs); is able to communicate appropriately with students and colleagues; and is able to work in a team (1). Teaching involves specific professional knowledge in addition to the development of cross-cutting and social abilities for life, which would be hard to achieve if traditional teaching is maintained (6).

To achieve quality medical education, it is important to have a historical view of education, and thus make use of the multiple tools offered by pedagogy. Medical teaching has been transformed over the last few decades, leaving traditional learning methods behind and moving from a *positivist* model to a *constructivist* model founded on problem-based learning, which has proven to be a sound way to train (7). The current teaching models are aimed at a North American model based on a laboratory biomedical view in which the humanistic component tends to be relegated to a secondary role (8). This leads to less physician-patient interaction and not using semiology as a fundamental tool in the diagnostic process, and results in errors and increased care costs (9). Problem-based learning is needed, integrating basic science, clinical science and a humanistic component.

In the words of Gutiérrez, the history of education serves to help us know and overcome the past, as well as illuminate the future (10). Only by understanding the mistakes we have been making in medical education can we refocus the academic future. For example, memory-based learning does not help to solve the problems faced by a physician in real life. The student must be able to decide when to use the knowledge he/she has and how to use it; this involves a high degree of creativity in problem solving (1). The proposed pedagogical model for physicians is, for example, the *developmental* model - based on the contributions of Piaget and Dewey - which seeks learning autonomy and individual and collective self-management, guided by a stimulating environment and an educator who progressively and sequentially facilitates access to cognitive structures to reach a higher stage of intellectual development, according to each student´s needs and conditions (11). Medicine, as an ever-changing area of knowledge, needs a physician who has been prepared from his/her foundations in a self-directed search for knowledge. The student should be prepared to seek information, recognize it, problematize it, reconstruct it and know how to apply it (11). It was also Dewey, with a pragmatic concept of education, who defended "teaching through action", with the premise that "only manual and intellectual activities promote experience" (10).

Thus, it is also interesting to propose a learning strategy such as the *cognitive* strategy. The acquisition, codification, recovery and knowledge support processes are key for the physician's activity (12). The medical students' clinical

practice period seeks to optimize the use of medical language - consolidating (strengthening) the use of medical terminology expressed in the correct writing of clinical histories - and seeks to structure the concepts learned previously during the theoretical period in the university, and acquire problem-solving capacity - solving the same problems which will be described by his/her patients in future real-life situations. In addition, this type of learning strategy seeks to give the student an active role in everyday activities, shadowing the instructing physician, and simulate real situations in which he/she can share his/her opinions and positions regarding the patients. However, education goes beyond pedagogical models or learning strategies; the training physician is obliged to plan educational content and choose the best training techniques for his/her students and thus achieve the medical training objectives. Academic and administrative planning, management, evaluation and follow up processes, such as teacher performance evaluations and self-evaluations (with their respective feedback) should be implemented, in addition to curricular and pedagogical processes established in the respective institution's mission (11). As noted by Pinilla and Moreno (6), the essence of study plan changes, as part of the university's undergraduate or graduate curriculum, compels each professor to be aware of his/her role in the various teaching, outreach and research functions.

Furthermore, traditional training in classrooms and auditoriums in the clinical setting poses big challenges: the availability of these settings, limited time in the hospital setting, and current restrictions which seek to decrease students' infectious disease contagion lead us to propose the application of information and communication technologies (ICTs) (13, 14). The advent of teaching models such as electronic learning or blended learning have created new learning environments. The latter model gives rise to a proposal known as "flipped classroom", which is a pedagogical tool which seeks to transfer much of the information through virtual formats prior to the encounter with the instructor, in order to leverage the available time, and is highlighted in systematic reviews as one of the most promising learning models (15-17). It is imperative for medical training to include these new proposals at all levels of training.

Conclusions

Education in all areas has been modified throughout history. The present is not an absolute (10); only by understanding the changes over time and the correction of errors in medical education can we achieve a better educational focus for the times in which we live. It remains to be said that medical education definitely does not mean reproducing the information learned or the mere activity of passively transmitting knowledge (3), as has been done until now; rather, in this generation of new physicians, it should foster knowledge acquisition with a critical attitude, research curiosity, the use of new technologies and, something harder to achieve: understanding of the social and cultural context in which they live.

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