

Medical Education and Research during Pandemic

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EDITORIAL

Medical education is a branch of cultural history and has as main purpose the formation of new generation of specialists for the health system. Each society developed medicine and medical education that fit best with traditions, health problems, and necessities at a given moment. Therefore, historically, huge differences can be noticed in medical education between different geographic regions of the world. Currently, based on globalization, differences in the formation of new doctors in different countries are not as evident as they were 100 years ago or more. On the other hand, there are particular features for virtually each university or faculty of medicine.

What do we know today about the medical education, as we were prepared to be doctors, and not medical educators? Maybe just scattered information coming from our memories as students (and this was usually many years ago...), coming from our students, colleagues, or our own children. Doesn't matter the source, information are far to be complete or even consistent, and therefore, medical education is frequently two or three steps back to necessities. We often forget that the doctor of the new world is a part of a social system and is not in the top of the social pyramid. The procedures are based on systematic evidence, standardized, and there is a continuous need of information. We must consider that in many cases the patient is well-informed, as the data about her/his disease are freely available. Therefore, nowadays communication, skills,

cooperation, management, and professional attitudes are essential in medical care.

Which are realities that we face today in medical education? We must mention here just some that were not completely inserted into the medical curriculum, like, the IT "attack", technological explosion, robotic surgery, regenerative medicine, human genome and gene manipulation, virtual medicine, and last but not least, artificial intelligence. Therefore, the curriculum is not fully adapted to necessities, includes a large volume of theoretical data, skills are insufficient, and it is usually teacher centered. Topics are focused on acute and chronic diseases, and there are few efforts to identify students' native abilities. In most of the cases, teachers are driven by the curriculum, and students are driven by the type of examination.

What could we expect in medical education soon? Maybe a personalized tutorship program performed by artificial intelligence to drive the full length of studies. This means the possibility to cooperate and to exchange data and ideas with colleagues and teachers from virtually everywhere in the world. In such a condition, teachers are involved mainly in the modulation of existing curriculum, and to offer explanation for problems difficult to understand. This is not a science fiction movie, because a pilot study of this type already started at the University of Singapore in 2017.

The beginning of 2020 came together with Sars-Cov-2, also known as COVID-19, which dramatically changes our methods to do medical

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education. Faculty staff, medical students, master and PhD students were more or less prepared to abruptly jump into the online teaching and learning. A lot of online learning platform are now available, including virtual lectures and examination module. A top 10 or top 6 of such platforms maybe found on the Internet. There are some benefits of the online medical education, like teaching/learning in unusual condition, inexpensive education, promotion of independent learning, or revisiting lectures. There are also some disadvantages, like minimal socialization, quality concerns, minimal supervision, spending many hours in front of the computer, and maybe the most important the loose of contact with the real patient. Altogether, these disadvantages give rise to stress, anxiety, and depression, reported by many students.

Online lectures seem to be significantly shorter, but fortunately, similar in their content. In most of the cases, teachers mimic classic or conventional lectures, with one-way transmission of data. Interactions are limited and, in some cases, interruptions are due to organizational moments. To be more efficient, probably the hybrid system including synchronous and asynchronous online lectures should be introduced. This implies an effort in addition, to make a movie with full lecture(s) that can be used by students whenever they need.

Examination is very different from what it once was. Online examination showed an increase in the average of marks from a year to another. At present time many universities try to develop best examination systems, like “open book real time examination”, or “closed book examination” (Imperial College of London). It is too early to decide which method is the best, so in most of the cases examination is based on multiple choice questions for both theoretical and practical examination. The global interest of students for online teaching depends on the educational strategy of institution, pedagogic abilities of teachers, individual imagination, and the capacity of the teacher to mimic a real time lecture as better as possible. Perhaps the most important problem in this context is the pyramid of Miller in its upper part: knows, knows how, show how, and finally, do. The last step is very important to be supplied by clinical activity.

In many universities research is an important component of activity, involving both teacher and students. At current time we can notice major difficulties in developing both basic and clinical medical research. This was soon reflected in the quality of research work in different field of activity and dramatic decrease in the number of publications. This is supported by the decreasing number of submissions in last two years, and many medical journals encounter serious problems in order to fulfill a volume with the required number of articles. Unsatisfactory medical research also resides from the number of students per teacher and lack of clear introduction of research into the curriculum.

In fact, humanity always found solution for major problems of the society. For medical education and research some of them could be a rapid development of centers for skills, creation of strong IT departments in medical faculties, organization of central examination for students, developing artificial intelligence, and implementation of tutorship and mentoring programs. Therefore, a new competition between medical universities emerged, and other teaching/learning and research methods are waiting to be invented. There are many questions without a definite answer at present time, but we must think that a medical student today will be a doctor in 2030 and beyond.