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EDITORIAL

Medical Education: Challenges in a World That is no More at the Time of *The Anatomy Lesson* of Dr. Nicolaes Tulp

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Firstly, it is amazing that it is not yet defined what is expected from a physician in Portugal within the next ten years: what skills should medical doctors have?

The answer to this question is obviously a very complex task which, in order not to be based solely on readings from a good crystal ball or the entrails of a sacred bird, must have a scientific approach, led by physicians and universities. However, it must also include the perspectives of other stakeholders in the process: industry, other health professionals, patient associations, and the general population, among others. It is a process that, once started, is already behind schedule, but even so, it would still provide a basis. The translation of these societal needs into pedagogical and clinical competencies requires the technical grounding that only those immersed in medical practice and education can provide.

In the absence of this crucial definition, some speculation on these putatively important skills can be done. Emerging skills are numerous and varied, some more focused on medical care and others less specific. A physician is not expected just "to know," but "to do," and do well. As prime examples, we can cite technologies and the new epidemiological reality. Additional relevant changes include the paradigm shift in the lifestyle of the new generations, the need to intervene in public health policies and management skills.

The inclusion of skills related to technological evolution, including artificial intelligence, precision medicine, and continuous monitoring systems, seems to be the most obvious. Some examples include the ability to interpret and validate diagnoses assisted by artificial intelligence, knowing how to deal with the limitations and biases of

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clinical machine learning models, adequate use of the data-driven clinical decision support tools, integration of remote monitoring data and molecular biomarkers into clinical practice, or working with robotic surgery systems and advanced telemedicine.

It also seems that epidemiological changes (population aging, chronicity and comorbidity, and the increasingly cosmopolitan nature of the Portuguese society) cannot be reflected solely in the inclusion of these theoretical aspects in the curriculum ("four additional lectures and the issue is solved"). To cope with these challenges skills or competences are needed, such as teamwork, leadership, communication, and shared decision-making, which, in addition to including how to deal with radically different cultures, must be taught in Portuguese medical schools.

Other important skills, would be those related to management, how to maintain professional and care integrity in a complex media ecosystem, recognizing and dealing with the emerging public health threats, and integrating the impact of climate change on health, among others.

Human relations, compassion, and empathy are the foundation of every medical act. While Portuguese medical schools recognize these as core competencies, the challenge lies not in acknowledging their importance but in ensuring they survive the pressures of an increasingly technology-driven and overburdened curriculum, and that they are genuinely assessed rather than merely assumed.

Medical education, specifically how to teach, must be scientifically informed. The scientific evolution of learning sciences must be taken into account in curriculum design. The methods that have proven effectiveness, such as problem-based learning, clinical simulation, or structured feedback should be implemented. The assessment needs a dramatic shift. In addition to an improvement in curricular alignment, assessment must include competency-based assessments, especially in the workplace, and transforming assessment into a learning tool. The validity and reliability of quantitative assessment must also be discussed - what does a grade of 16 or 17 mean in the assessment of a patient with a red eye?

Medical schools have made remarkable efforts to face these new realities, but constraints are also significant. As mentioned before, the lack of definition of competencies is probably the most important one. However, there are other factors such as curricular overload (and a need to remove content - something comparable to cleaning the Augean Stables), a pedagogical culture that still confounds exposition with learning and the alignment of assessment with competencies (decrease the impact of high stakes assessments, e.g. - comparable to slaying the Lernaean Hydra). The pressure on university hospitals, the scarcity of clinical teachers with dedicated time for teaching, or the difficulty in attracting students to specialties and regions with greater need, among others.

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Of course, none of this implies abandoning the scientific rigor that should underlie any medical training. It implies recognition that this rigor must also be applied to teaching itself. Medical schools must themselves be pedagogical research communities capable of studying, investigating, evaluating, and reforming their own practices with the same critical spirit that they demand from their students when analyzing a clinical trial.

The Journal of the Sociedade das Ciências Médicas could play an important role in this process, by accompanying and helping structure this national conversation. Not only as a space for publishing research in medical education, but as an active platform for the debate, dissemination, and critical reflection.

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