

Towards a Global Educational Matrix for Tomorrow's Health Systems

Jamsheer Talati,¹ *FRCS (Edin)*

Dear Editor,

Society supports medical schools expecting them to produce physicians who can improve both the health of the population as well as the health system itself. This goal has not been achieved yet; deaths from tuberculosis (1.7 million, 2006)¹ are but one of many examples that points to that failure which is commonly attributed to under-financed yet physician-intensive workloads. Medical education systems are seldom incriminated, as health is thought to be the outcome of a concatenation of many factors, of which the medical school is only one component.² The medical school, however, should not be exonerated, as it is curricula that determine the physician's behaviour. Thus, it is time for effective and courageous educational reform.

This letter explores one model of reform which uses an educational matrix (EM) to optimise curricula in order to accelerate the development of appropriately competent individuals who are capable of improving the health of the population and the health systems.

The inability to provide competent physicians could be due to (i) insufficient, poorly-trained teachers,³ (ii) complex, resource intensive education system, (iii) lack of available resource in the areas practised, and (iv) inability to adapt to the environment where job opportunities are found.

The EM-based model was developed to address underlying faults in medical education; utilise the advantages of brief, intense and focused training – notably successful in training of healthcare workers; include team learning in the earliest stages (because of its proven effectiveness),⁴ and reduce costs. Expected future trends in health systems were reviewed to modify the model. The global health system will evolve more rapidly than we can ever imagine as new technologies emerge. Foreseeable changes include technology-intensive treatment, team work, loss of empathy, and health delivery by inadequately trained personnel. Complex diagnostic or management problems will continue to demand reasoning and quick decisive action. Overwhelming burden of diseases will intensify efforts to teach simple principles of hygiene, nutrition, exercise, and pollution control to intensify prophylactic approaches. High-speed knowledge production (channeled into better diagnosis and treatment), occurring at a

“phenomenal rate”,⁵ will mandate high quality education capitalising on work based and newer learning techniques. Additionally due to the speed of change, educational models will have to provide easily replaceable course or module units within the curriculum that could be adaptively withdrawn or modified, without altering curricular structure.

From within the vast framework of known facts, what should the physicians be taught? Today's comprehensively trained MD/MBBS is definitely not ready for practise in society. In contrast, practising physicians need to specialise. Tomorrow's medicine will require yet fewer competences, but at a higher level. Fortunately everything is being made easier. Uncertainties of complex diagnostic problems are being resolved by tests; and explicit protocols, based on hard evidence are available. Instruments make procedures safer, but require high levels of dexterity, and empathy; not comprehensiveness. Education too could therefore focus on a limited number of defined task sets. This opens an opportunity to produce individuals capable of performing perfectly, with a high competence in a limited range of activity at the earlier stages of their development; but not necessarily with all the complex skills needed for diagnosis or treatment planning, which can be left to mature individuals who have graduated from advanced courses. High level diagnostics will continue to require comprehensive training; but before undertaking advanced courses, the physician-in-training would have stepped out into the real world to perform important components of the tasks required for health, before returning to retool.

To ward off tendencies of mechanisation, avariciousness, and neglect of human values, every module would have to include appropriate educational elements.

In this system which builds up an individual's skills and confidence gradually, high scholastic achievement would not be an essential entry requirement. The medical schools/colleges could then consider taking in individuals from rural less advantaged schools. In performing a task for which one is well trained, success (even in today's world) results not only from scores, but also from focused expertise, social networks, and ability to recognise and manage change.

The new model will require construction and placement

¹ Department of Surgery, Section of Urology, Aga Khan University, Karachi, Pakistan
Address for Correspondence: Dr J Talati, Aga Khan University, P. O. Box 3500, Stadium Road, Karachi, Pakistan.
Email: jamsheer.talati@aku.edu

of numerous courses into an EM – a laborious but easy task. Grouping of these courses into modules, will be required, but should remain fluid, as no one can predict what new jobs will be required in tomorrow’s health system. Core modules would need to be catalogued in ways that indicate stages in progression to a full fledged physician, in non-rigid hierarchies. One option is shown in Figure 1 [where work-based learning (WBL) is interwoven into the course/modular elements of the EM]. The multiplicity of available EM courses would be very well suited to removals and additions from the module, fulfilling the need for a dynamic curriculum as suggested by Shanley.⁵

In moving through the EM, an individual would have competences to serve in some part of the HS at the end of each modular stage. Opting for a temporary “dropout”, after initial courses, learners would not be considered as “failures” as they can serve in society and return to take up other courses, to progress according to their desire, capacity and willingness to take on further responsibility. The EM allows progression within recognised worker professional streams (say from a physician assistant to physician) but also from one professional stream to another. An ambulance driver could first serve as a first aid worker in the ambulance, and retool to become ultimately an army ambulance technical field surgeon.

The EM must be adopted worldwide. It will ensure rapid production of high quality healthcare workers and professionals, and reduce the escalating need for physicians in affluent as well as impoverished states. The advantages are profound.

Such reform is difficult, especially as it involves switching from multiple educational ownership (separate Nursing, Medical and Technician Schools), to a unified matrix. Schools for healthcare workers/professionals would, utilising the economies of scale, require fewer traditional subject teachers and be able to afford mathematicians, ethicists, philosophers, engineers, environmentalists, legalists, and legislators in order to further enrich ‘physician’ education.

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