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Opinion Article

Competency-based Physiology UG curriculum: Use of novel learning tools

Pradip B Barde[1], KK Deepak[2]

[1]Dr. Vasantrao Pawar Medical College Hospital and Research Center, Nashik, Maharastra, [2]Department of Medical Physiology, All India Institute of Medical Sciences, New Delhi, India.

***Corresponding author:**
Pradip B Barde,
Dr. Vasantrao Pawar Medical College Hospital and Research Center, Nashik, Maharastra, India.

bardepb@gmail.com

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The undergraduate medical education program is designed with a goal to create an 'Indian Medical Graduate' (IMG) possessing the requisite knowledge, skills, attitudes, values and responsiveness so that she or he may function appropriately and effectively as a physician of the first contact of the community while being globally relevant.[1] To achieve this, IMG needs to have certain attributes, namely, 'Clinician,' 'Leader,' 'Communicator,' 'Lifelong learner' and 'Professional.' This has been directed toward achieving the national goal of 'health for all' and health right of all citizens and by undergoing training for the medical profession to fulfill their social obligations toward the realization of this goal.[1] The above multidimensional development underlines the overall aim to have an IMG who will be able to deliver better patient care as per societal needs.

Considering the GMER-2018, out of total 167 topics and 1118 outcomes for Pre- and Para-Clinical subjects of MBBS UG curriculum, we have 6.6% (11) topics with 12% (137) outcomes applicable for the subject Physiology. As per GMER-2018 document, the overall aim of the curriculum involves several broad outcomes through the achievement of the broad competencies along with retaining the Physiology-related character of learning and assessment and ensure that phase-wise outcomes are delivered and evaluated. While implementing it, the topics that are similar will be taught together to decrease redundancy which will allow the learner to integrate the concept as well as it will align learning and assessment experiences to the outcome as per the level of achievement specified.

Physiology competencies involve mostly cognitive domain (K) with a level of knows how (KH) and number of important skill (S) domains with a level of show how (SH). These knowledge and skill blocks are foundations for understanding the physiologic basis of disease in further studies and its management. Early clinical exposure and self-directed learning (SDL) are two important aspects newly added to subject training. There are several teaching-learning tools for delivering competency-based medical education (CBME) curriculum. For the Physiology course, we suggest experiential learning through model making and peer-assisted learning (PAL) as tools for reinforcing learner goals of IMG. Along with this, 'role play' and 'skits' can be used as an important tool for teaching Attitude, Ethics and Communication (AETCOM) module in Physiology.

The experiential learning methods may be used as an effective teaching-learning tool in achieving these outcomes for the subject. Dewey[2] conceptualized 'experience' as an organizing focus for lifelong learning and development. He believed that active engagement and interaction with their surroundings helped learners gain applied rather than abstract knowledge. In our institute, we organized dynamic model and poster making competition for every organ system contributing

to homeostasis to enable them to learn the system through a holistic approach. Various phases involved include all essentials group dynamics, planning, critical thinking, integration with other disciplines such as engineering, economics and designing, teamwork with communication skills and presentation skills along with behavioral aspects as applicable. Psychomotor skills reinforce long-term memory of theory studied during the process of model making. The models prepared by students for depicting receptor function, dorsal column pathway, pain pathway, electrocardiography, glomerular filtration and urine formation, visual pathway and various other systems. These models were prepared by students in group where they took the help of their engineering colleagues. It also fostered the concept of interdisciplinary integration. Hands-on experience with live demonstration with a description used in the process gave them confidence over the topic studied. Time management was an inherent part of the process due to target deadlines and duration for presentations. The patient explanation to all peers repetitively reinforced human values and communication skills.

Similarly, PAL is a widely accepted tool in theory, research and clinical education as an educational experience in which students encounter mutual benefits as teachers and learners. Students are involved actively in their learning, instead of passively receiving information from the teacher. PAL is evident as the purposeful component of professional preparation programs in the various health-care disciplines such as medicine, dentistry, nursing, occupational therapy and physical therapy.[3] Positive outcomes identified by peer teachers include opportunities to practice leadership and teaching skills and to review and enhance understanding of clinical skills. These all attributes correlate well with desired attributes of an IMG. We formed a group of ten students as a peer group with a peer leader/trainer and peer learners. It involved a continuum of learning in classroom and non-classroom setting in an informal learning environment. They were assigned with a facilitator teacher to monitor the activity and knowledge exchange process. Students learning experience involved teamwork, SDL and communication skills as peer learners.

Finally, as per AETCOM booklet of Medical Council of India, for administrative and planning purposes, we divided five AETCOM Modules for Phase-I, among all three departments. We have included the module number "1.2 - What does it mean to be a patient? and "1.3 The doctor-patient relationship" under curriculum of Department of Physiology, rest of the module are taught by Anatomy and Biochemistry Department.[4] The various teaching-learning tools have been suggested for these modules. However, to make them interesting to learn as per our experience, using skit and role play as teaching-learning method, are recommended for teaching AETCOM module allotted to Physiology. Both these methods, the learners relate to the situation very easily and these can cover various aspects of the topic through verbal and nonverbal communications. There have strong affective domain involvement. Students remain cheerful and in well-receiving states as compared to didactic sessions while teaching these competencies. We involve postgraduate students and senior students as actors for role-plays and skits which further strengthen and reinforce the continuum of learning during the session for 1st-year students.

To summarize, CBME for physiology addresses several unmet needs and use of experiential learning through model making, PAL and use of skits with role play for AETCOM module is strongly suggested.

Declaration of patient consent

Patient's consent not required as there are no patients in this study.

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Conflicts of interest

There are no conflicts of interest.

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