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Implementation of competency-based medical evaluation (CBME)-transition times: the faculty's appraisal of the anesthesiology curriculum for medical undergraduates using the Delphi technique

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Abstract

Background: This study aimed to establish the suitability and acceptability of the curricular changes in the subject of anesthesia introduced by competency-based medical education (CBME) for undergraduate medical students.

Methods: The sample consisted of 20 subject experts from different teaching institutes who were actively involved in teaching undergraduate medical students and had at least 10 years of teaching experience. The study was conducted in 3 rounds using the Delphi technique.

Results: These subject experts identified the topics relevant and important to undergraduate students and also suggested the addition of role-play videos and simulations with some interesting and daring scenarios, case studies, and sessions for regional anesthesia competency. There were suggestions to include topics such as ensuring asepsis during regional anesthesia and visits to the intensive care unit (ICU). The majority of the participants were satisfied with the assessment methods. Two-thirds of the experts agreed that the anesthesia curriculum accurately covers the skills required for an Indian medical graduate. Moreover, 80% of the participants agreed that the suggested curriculum is complete and adequate for the undergraduates.

Conclusion: Curricular changes introduced by CBME seem to be aligned with the goal of preparing globally relevant and socially accountable undergraduate medical students.

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Highlights

What is current knowledge?

Curriculum development in the health sciences usually entails a lengthy, in-depth review of most or all aspects of the curriculum. The anesthesiology curriculum for the undergraduates followed by Indian medical colleges has outlived its life, and a new CBME curriculum has been rolled out.

What is new here?

The review of the newly implemented anesthesia curriculum not only made the faculty familiar with it but also expressed their apprehensions, as well as very positive suggestions. These will help administrators in adopting the suggested teaching-learning methods.

Introduction

Curriculum appraisal is essential from time to time to review its effectiveness and validity for the system. A competency-based curriculum has been launched in India with the intention to make Indian medical graduates (IMGs) globally relevant. This implies that IMGs should not only acquire the knowledge but also possess adequate skills, the right attitude and values, and responsiveness. Anesthesia is a specialty for which no separate exam is administered for undergraduates. Exposure to the specialty is limited to a few theory classes and two weeks of clerkship in the operation theater, intensive care unit (ICU), or clinics. This short exposure to anesthetic skills is insufficient for the IMGs to learn basic life support skills and perform the expected role, i.e., physician of first contact.

There is a major shift in the curriculum from knowledge to skills and attitude. The new curriculum brings hope for positive change, but there is apprehension about its implementation. As the program was launched, an appraisal of the prescribed syllabus was conducted involving experts and teachers, which may bring out structural changes relevant to the need of the hour.

Background

Curriculum development in health sciences usually entails a lengthy, in-depth review of most or all aspects of the curriculum. (1) The anesthesiology curriculum for the undergraduates in various medical colleges of our country has been broadly outlined by the Medical Council of India in Chapter III (9.2) of Graduate Medical Regulation, 1997. (2) The time-old anesthesiology curriculum has outlived its life and has been replaced by the new competency-based curriculum (3). The relevance and appropriateness of the new curriculum are yet to be established. The Delphi technique is a reasonable strategy for achieving consensus over curricular needs. (4) As physicians' requirements for knowledge and skills evolve, medical educators at all levels often encounter the need for new curricula. The concept of an adult learner in the teaching-learning process further authenticates the utility of student feedback to evaluate the teaching curriculum. However, it should be remembered that such an exercise is useful only if the student evaluation is analyzed and implemented to overcome the identified shortcomings. It has been rightly mentioned that evaluation is an essential quality assurance process, which has been described as analogous to clinical audit and enables the curriculum to evolve and constantly develop in response to the needs of trainees, institutions, and society (7-9).

Objectives

This study aimed to establish the suitability and acceptability of the recently introduced curriculum for undergraduate medical students in the subject of anesthesia. This was achieved by collecting the opinions of experts in the field.

Methods

After obtaining ethical clearance from the institutional ethics committee (IEC19/171), this descriptive study was conducted over 6 months. The sample consisted of subject experts from different teaching institutes (including the authors' institute) who were actively involved in teaching undergraduate medical students and had at least 10 years of teaching experience. These participants were selected randomly from the list of faculties available from different medical colleges, as well as an anesthetist from the private sector and a member of the national committee (Indian Anesthesia Society). The participation was purely voluntary, and informed consent was obtained. A total of 20 potential participants were thus selected.

All the participants were emailed to sensitize them about the necessity of the study, its procedure, and what was expected of them. After obtaining their

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consent, they were sent a copy of the latest curriculum in the specialty of anesthesia for undergraduates (UG), as prescribed by the National Medical Council (NMC), erstwhile Medical Council of India (MCI). The anonymity of the participants was ensured throughout the study and later on. The study was conducted in 3 rounds using the Delphi technique (4,5).

In the first round, the participants were requested to thoroughly examine the curriculum that had been emailed to them and generate a list of topics that they considered appropriate and necessary for the core training at the UG level (10). At the end of this round, the lists of topics were collated to generate an exhaustive list. During the second round, the participants were asked to weight the importance of each topic on a 5-point Likert scale. The participants were free to comment on the topics. At the end of the second round, the list of topics was refined, and duplications were removed. The mean Likert score was calculated for each topic in the list, and a new list of topics with weighted scores (in descending order) was prepared. In the third and final round, the participants were asked for final comments and ratification of the weights, if required. They provided their scoring and the overall score of a particular item on the list. They were free to add new topics that they thought were necessary and important but were not included (Figures 1 and 2)

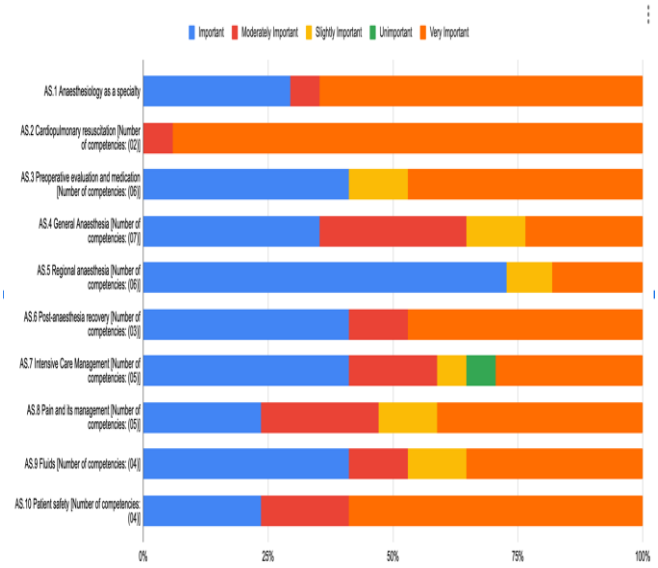

Figure 1. Round 2 of Delphi, appraisal of the anesthesia curriculum

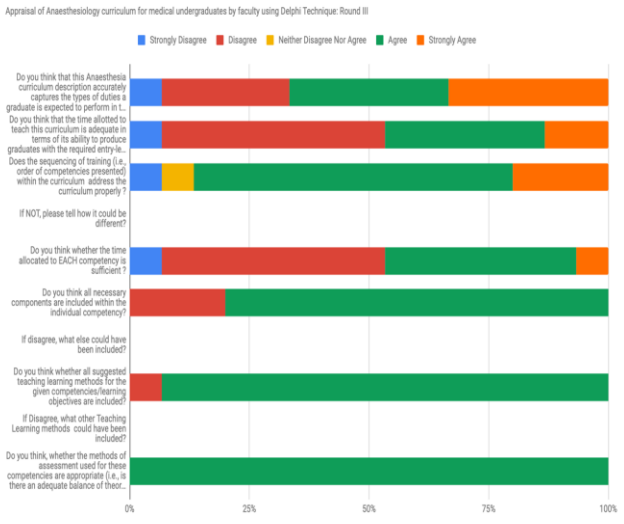

Figure 2. Round 3 of Delphi, appraisal of the anesthesia curriculum (Annexure I)

The expected outcomes were to:

1. Identify gaps/lacunae and find ways to make it more engaging for undergraduate medical students for their involvement in anesthetic/basic life-saving skills
2. Incorporate more learning and assessment methods to make anesthesia teaching and learning more meaningful

Results

Out of the 20 emails sent, 15 faculty members responded, making a response rate of 75%.

There was a nearly equal distribution of seniority amongst the participants, ranging from 10 to 25 years of experience in the specialty. When asked to rate the importance of each competency on a 5-point Likert scale, nearly three-fourths of the experts considered all the competencies as important or very important. Over 90% of the experts believed that cardiopulmonary resuscitation is a very important competency for an IMG. However, pain as a specialty and regional anesthesia were judged as moderate in importance for the IMG.

Two-thirds of the experts agreed that the anesthesia curriculum accurately covers the skills required for an IMG. Only one-third had reservations about the adequacy of the curriculum. Nearly half of the experts expressed that the time allotted for teaching-learning (T-L) of the subject matter was inadequate. Most of the experts were satisfied with the training sequence for the specialty. It was suggested that airway management should be taught early in the training with simple case scenarios to generate interest in the subject. Although 80% of the participants agreed that the suggested curriculum is complete and adequate for the UGs, suggestions were made to include ensuring asepsis during regional anesthesia and visits to the ICU.

The majority (93%) of the participants were satisfied with the T-L methods suggested in the curriculum, and the others suggested the addition of role-play videos and simulations with some interesting and daring scenarios, case studies, and DOAP (demonstration, observation, assistance, performance) sessions for regional anesthesia competency. Ninety percent of the experts were satisfied with the suggested assessment methods.

However, there were suggestions to delete some competencies as these were repetitious, irrelevant to the UGs, or would be covered by other specialties. There were also suggestions to modify some others. The expert panel had specific observations about the curriculum (Table 1).

Table 1. Suggestions from experts for deleting some competencies considering less direct relevance to undergraduates

S.NO.	Competency	Comment
	(AS10.2) Enumerate the hazards encountered in the perioperative period and steps/techniques taken to prevent them.	It is not of much use for undergraduates and can be deleted.
	(AS10.3) Describe the role of communication in patient safety.	It is not of much use for undergraduates and can be deleted.
	(AS7.3) Observe and describe the management of an unconscious patient.	It was suggested that the topic is very wide since there are several causes of unconsciousness.It cannot be covered in one session. It can be deleted, as this topic can be covered in surgery and medicine.
	(AS4.4) Observe and describe the principles and the steps/techniques in maintaining vital organ functions in patients undergoing surgical procedures.	It was suggested that this topic be deleted as it can be covered under the monitoring section.

Other important specific comments by the group were as follows:

1. Inclusion of case scenarios, videos, and rare events in the curriculum; maybe a little more teaching by simulation if the time permits.
2. Since parts of some competencies are quite elaborate and irrelevant for an undergraduate, e.g., in ICU competency, Enumerate and describe the criteria for admission and discharge of a patient to an ICU; Observe and describe the principles and the steps/ techniques involved in anesthesia outside the operating room; caudal epidural; pain management in terminally ill and palliative care, it is felt that the allotted time appears insufficient.
3. Discussion on clinical case scenarios can increase students' participation in learning the important role of an anesthesiologist in patient management. Information and teaching regarding central venous cannulation are not required at the undergraduate level.
4. The teaching of basic life support is repeated twice or three times, and the program is too lengthy to be administered in such a short period. Undergraduates do not need to know so much about this specialty. As an observation looking at the balance of time and competencies, it might be very difficult for graduates.
5. Communication with patients and relatives regarding procedures, risks, benefits, and prognosis is important and should be incorporated.

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Discussion

Traditional undergraduate teaching remains not only discipline-based education but also teacher-centered. The introduction of competency-based medical education revamps the traditional system by introducing essential competencies with specific teaching-learning methods such that an outcome-based curriculum can be planned with the incorporation of knowledge, skills, attitude, and ethics. To the best of our knowledge, no study so far has looked into this aspect of the curriculum. Out of 46 competencies given for the anesthesia curriculum, 9 require essential skill assessment. The competencies of advanced cardiac life support (ACLS), central venous cannulation, intravenous cannulation, and airway management have been given importance to integration with medicine, pediatric medicine, and surgery. The participants were satisfied with and accepted the new curriculum, including the suggested teaching-learning methods. The only apprehension expressed by the participants was related to the inadequate duration of teaching-learning of the subject and practical exposure. Incorporation of role plays, DOAP, videos, and case studies has been suggested to generate more interest in the specialty and promote experiential learning. The participants were not only accepting of the new curriculum but also positive about its feasibility.

Conclusion

Appraisal of the anesthesiology curriculum that has been implemented by the NMC from 2019 was carried out using the Delphi technique. The study validated the acceptability and feasibility of the new curriculum. However, real impact and challenges will only be visible once it is practiced. A follow-up survey of experts may reveal the fate of apprehensions and the real challenges faced in implementing the CBME in anesthesiology. The long-term impact of the change will only be reflected after a couple of years once these students become IMGs and serve society.

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Ethical statement

Institutional ethics committee (IEC19/171) Pt BDS, PGIMS, Rohtak

Conflicts of interest

None

Author contributions

PK, Concept, design, data, analysis, preparing the manuscript, submission
SS, Concept, design, data, analysis, preparing the manuscript
AR, Data, preparing the manuscript
RM, Concept, design, preparing the manuscript
KK, Data, analysis, preparing the manuscript

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