

The changing face of postgraduate anaesthesia teaching curriculum: Need of the hour!

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ABSTRACT

The speciality of anaesthesiology is evolving rapidly. The recent pandemic witnessed anaesthesiologists as the front-liners catering not only as critical care physicians but also as trainers and even administrators. Today, anaesthesiologists are required to have not just sound clinical knowledge but also proficiency in skills and techniques and aptitude for leadership. The recently introduced competency-based postgraduate training programme for anaesthesiology in India with its specific learning objectives envisages the creation of competent specialists with a broad range of skills who are competent not only to handle effectively medical problems but also acquire the basic teaching skills, communication skills and leadership qualities. The curriculum marks a paradigm shift from university-based, passive, teacher-centric to student-centric, active teaching-learning methods including problem-based and self-directed learning. The mindset, lack of adequately trained faculty, infrastructure, learning resources and time constraints form the major impediment in the successful implementation of the new curriculum.

Key words: Curriculum, education, problem-based learning

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INTRODUCTION

Anaesthesiology, a speciality that was born under the shadow of surgical specialities catering to perioperative care, has extended its domains out of the operation theatre to the fields of pain medicine, trauma and critical care. A core anaesthesiologist functioning as a perioperative physician is expected to have a profound knowledge of human physiology and pharmacology to understand various diseases and their anaesthetic implications.^[1,2] The recent pandemic witnessed anaesthesiologists as the front-liner workers conducting themselves not only as critical care physicians but also as trainers and even administrators. More so, the speciality of anaesthesiology being skill-intensive demands proficiency in the techniques and skills acquired during basic anaesthesia training. Therefore, it is vital to ensure that the designed anaesthesiology curriculum should ensure sound theoretical knowledge as well as expertise in the perioperative care of surgical patients, competence in

procedural skills both in emergency and resuscitation domains and development of the attitude to be a team leader.

For the past 100 years, medical education had been hovering around a teacher-centric approach.^[3] The concept of university-based medical education in the early twentieth century by Abraham Flexner was carried forward by William Osler, who introduced the concept of bedside teaching and internship.^[4,5] Today, a century later, medical education is again on the verge of a paradigm shift from a teacher-centric to student-centric

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approach with the conceptualisation of competency- or outcome-based curriculum and embodiment of e-learning practices in the teaching pedagogy.^[6-8] The Medical Council of India (MCI), presently National Medical Commission (NMC), initiated this shift to competency-based curriculum (CBC) for medical graduates in 2018,^[9] which was later extended to the postgraduate courses. They instituted a change from the traditional topic-based lectures, which underplayed the development of critical thinking and reasoning skills to problem-based, self-learning, small group teachings to foster curiosity, holistic understanding of the subject and cultivate good communication skills.^[10,11]

COMPETENCY-BASED CURRICULUM

According to World Health Organization, the intended output of a CBC is a health professional who can practise medicine at a defined level of proficiency, in accord with local conditions, to meet local needs."^[12] CBC necessitates identification of the abilities deemed necessary for the physicians and formulating the curriculum to help the attainment of these predefined competencies. These competencies have been divided into three domains on which the curriculum is focussed.^[9,13]

- a. Cognitive domain, which applies to the intellectual capability.
- b. Affective domain, which includes attitude and behaviour and highlights communication.
- c. Psychomotor domain, which refers to technical manual skills.

The CBC for Degree in Medicine has made an effort to amalgamate the principles of comparative education, namely the principle of information transfer, with a view on emphasising the full development of the trainee. This includes teaching that is appropriate for skill levels, different skill patterns, learning styles, personality traits and cultural backgrounds. This also integrates the curriculum by creating interdisciplinary units that allow students to gain knowledge in different fields of integration and have the opportunity to contribute in a variety of ways that are specific to the goals of integrated units.

COMPETENCY-BASED CURRICULUM IN ANAESTHESIA

In 2019, CBC for postgraduates in anaesthesiology was launched.^[14] The preamble of guidelines for CBC-based postgraduate training programme for anaesthesiology

in India with its specific learning objectives envisages the creation of competent specialists with a broad range of skills who are competent not only to handle effectively medical problems but also acquire the basic teaching skills, communication skills and leadership qualities. The curriculum is extensive and introduces the post-graduate student to the spectrum of critical illnesses requiring admission to the intensive care unit (ICU) and management of acute and chronic pain management in addition to various nuances of anaesthesiology.

The pedagogical practices advised in teaching of medical graduate CBC have already been in vogue in anaesthesiology, namely problem-based learning, self-directed learning and small group teaching. Methodology in imparting knowledge in anaesthesiology is already emphasising protocol-based learning, based on best standards of care, error management and patient safety taking into consideration patient autonomy and resource allocation.

However, in contrast to medical graduate CBC, the CBC in Anaesthesiology has addressed the domains and has laid special emphasis on attitude and behaviour, safety, communication, presentation, audit, teaching, ethics, and law and management.^[14,15]

Regarding the modes of assessment, theoretically, CBC demands demonstration and documentation of the predefined competencies during the course of training with the incorporation of regular and frequent formative assessment. This allows early identification of the students' weaknesses and ensures timely corrective actions. This is in contrast to the previous university-based curriculum, which assumed acquisition of declarative knowledge and skills after the completion of the course. Anaesthesiology is a skill-intensive discipline, with training focused on procedural skill development. Procedural skills should be and are being taught with deliberate practice with specific, constructive feedback based on observation. Students must be assessed for their procedural skills at regular intervals and in the exit examinations. It is not easy to verbalise procedural skills. Procedural skill assessment is not mentioned in the new CBC, and assessment continues to be conducted for knowledge and judgment-based skills. A uniform, and anaesthesiology-specific objective structured assessment of technical skills (OSATS), similar to an objective structured clinical assessment, needs

to be formed, implemented and validated to assess procedural skills outside of the operating theatre objectively. Students practise a series of standardised skills on bench models that are assessed by a professional expert reviewer by using both standard measurement scales and a specific task list.^[16] OSATS is a reliable measure of technical skill and may be the key to assess procedural skills soon.^[17] National Board of Examinations, India has included an approach to assessing communication skills in a more organised manner.

NEWER NON-PROCEDURAL SKILLS

In addition to technical, it is now imperative to include other non-procedural skills as a formal part of resident training.

Communication skills

Anaesthesiologists have to interact with patients and their relatives in the emergency departments, ICUs, pre-operative evaluation clinics as well as after the surgery. Good communication skills are essential to take a focused history, explain the potential complications of the procedures, obtain consent for the same, explain prognosis, break bad news etc.^[18] Despite these facts, most anaesthesia textbooks do not cover it and it has been incorporated into formal anaesthesia training.

Teamwork

Teamwork typically refers to 'working together to accomplish a desired goal', as opposed to subordinates simply doing what the leader tells. Today, many patients present with multiple co-morbidities, and teamwork training is imperative in anaesthesia training as management of patients is in collaboration with people from various surgical specialities. Inadequate teamwork is one of the most common causes of preventable errors. Also, managing critical events, where one must act rapidly in spite of constrained time, data and diagnostic complexity, requires teamwork. Because members of a team may have different training and behaviour, there is a need for regularly practising teamwork dynamics through simulation-based scenario sessions.^[19,20]

Research and audits

Getting sensitised to research work is an important goal of any postgraduate training programme. Formal training in biostatistics, research design, ethical considerations and reviewing literature is important. This also helps the residents to understand the

research projects conducted in their field and to stay updated.

Departmental audits not only help to assess the areas of improvement but also provide data for comparison with global trends. Most of our literature and data come from the western world, which may not be applicable to the Indian population.

Simulation

In actual clinical practice, the chances of encountering certain rare life-threatening anaesthetic emergencies are limited. These skills must be actively taught rather than learned through reading about them to be effective. There are several reasons why simulation is so widely known for anaesthesiology training. The use of formal, regular simulation training in anaesthesiology will bring about changes in knowledge, cognition, psychomotor skills and team work that will, in turn, result in increased confidence levels and a positive attitude.^[21,22] All this is very important as organising and working in a trauma/casualty centre involves a lot of team work.

Career prospects

Over the past few years, anaesthesia has diversified to various specialities, including but not limited to neuroanaesthesia,^[23] cardiac anaesthesia,^[2] obstetric anaesthesia,^[24] critical care,^[25] pain^[26] and palliative care. It is important that residents become aware of various opportunities such as fellowship, super-speciality and research programmes, both national as well as international.^[27,28] It is also important to provide residents an idea about various pathways to further pursue career opportunities all over the world. There is a need to have career and placement cells in institutions to guide students in this direction.

Medicolegal aspects

Anaesthesiologists are vulnerable to medico-legal litigations due to the nature of their speciality which involves dealing with critical patients, performing various invasive procedures, handling drugs with a huge impact on patients' haemodynamics etc. Formal education on how to avoid and deal with such litigations is essential.^[29]

Sensitisation upon economic issues of patients

Current anaesthesia training focuses largely on development of skills and knowledge to improve patient safety. Residents should also be taught to be sensitive towards the economic conditions of

the patients and the costs of healthcare services in operation theatres, intensive care units and consumables. Another important aspect is to be aware of various national and state-run health policies such as Ayushman Bharat, expenses covered in medical insurance and the socio-economic status of patients' families. It becomes even more important in providing palliative care to critically ill individuals.

CHALLENGES

Any change or reform in the system is fraught with impediments. Previous authors have highlighted poor infrastructure and faculty-student ratio, lack of time and commitment as major road-blocks in the successful implementation of the new curriculum.^[30,31] Adoption of newer teaching approaches such as small group teaching require an increased number of trained faculty to accommodate different student groups.

MAJOR HURDLES IN THE ACCEPTANCE OF THE NEW CURRICULUM

- a. **Mindset:** Teachers and residents are accustomed to the traditional lecture-based teaching-learning methods, and there is reluctance in adapting to the change. In certain institutions, the teachers do not involve themselves in such teaching and assessment practices for the fear of losing out financially due to the corporate style of functioning, while in other teaching institutions, there is reluctance due to excessive time consumption in limited working hours. This would require a change in their mindset to understand and imbibe the benefits of the new practice.^[32] Financial compensation to those adopting the newer practices can serve as an impetus.
- b. **Faculty training:** For the success of the new curriculum, the faculty needs to be adapted to this new approach and familiarised with its grounding in competencies. The faculty needs to be trained to assess learners effectively against objective criteria on regular basis with constant feedback. To overcome this, basic and advanced medical education training should be made mandatory for those seeking teaching jobs.
- c. **Time constraints:** The new curriculum requires dedicated time to be devoted to the teaching and training process by the teachers who are themselves involved in hectic clinical work.
- d. **Learning resources:** The arrangement of learning resources in the form of not just libraries but also e-learning tools such as internet availability is a huge monetary support.

SUMMARY

The transition in the teaching curriculum in anaesthesia has commenced. The new CBC in anaesthesia for postgraduates in anaesthesia by the NMC has laid the foundation for this transition in India. We cannot expect things to change overnight. Ensuring a slow and gradual transition by imbibing the core components of CBC, such as self-directed learning, problem-based learning along with didactic lecture and formative assessment along with summative assessment can prevent overwhelming of the stakeholders. As we embark on the shift towards CBC, we will need to define the future determinants of our success and work in collaboration through local and national networks to overcome the challenges in this direction.

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Conflicts of interest

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REFERENCES

1. Sood J, Bhatia P, Johnson JE, Lalwani J, Sethi N. Career as a general speciality anaesthesiologist. *Indian J Anaesth* 2021;65:6-11.
2. Kamat CA, Todakar M, Rangalakshmi S, Pawan. Awareness about scope of anaesthesiology, attitudes towards the speciality and stress levels amongst postgraduate students in anaesthesiology: A cross-sectional study. *Indian J Anaesth* 2015;59:110-7.
3. Weller JM, Naik VN, San Diego RJ. Systematic review and narrative synthesis of competency-based medical education in anaesthesia. *Br J Anaesth* 2020;124:748-60.
4. Buja LM. Medical education today: All that glitters is not gold. *BMC Med Educ* 2019;19:110.
5. Norman G. Medical education: Past, present and future. *Perspect Med Educ* 2012;1:6-14.
6. Holmboe ES. Competency-based medical education and the ghost of Kuhn: Reflections on the messy and meaningful work of transformation. *Acad Med* 2018;93:350-3.
7. Reis, S. Curriculum reform: Why? What? How? and how will we know it works?. *Isr J Health Policy Res* 2018;7:30.
8. Irby D. Educating physicians for the future: Carnegie's calls for reform. *Med Teach* 2011;33:547-50.
9. Medical Council of India, Competency Based Undergraduate curriculum for the Indian Medical Graduate 2018;3:145-15.
10. Chilkoti G, Wadhwa R, Kumar A. Status of problem based learning in postgraduate anaesthesia teaching: A cross-sectional survey. *Saudi J Anaesth* 2015;9:64-70.
11. Holmboe ES, Sherbino J, Englander R, Snell L, Frank JR. A call to action: The controversy of and rationale for competency- based

- medical education. *Med Teach* 2017;39:574-81.
12. McGaghie WC, Miller GE, Sajid AW, Telder TV. Competency-based Curriculum Development in Medical Education. World Health Organization: Switzerland; 1978.
 13. Setlur R, Jahan N, Gupta N, Sheshadri K. Competency-based undergraduate curriculum implementation in anesthesiology—A survey-based comparison of two models of training. *J Anaesthesiol Clin Pharmacol* 2021;37:196-202.
 14. Guidelines for Competency Based Training Programme for postgraduation in anaesthesiology [Internet]. Nbe.edu.in. Available from: <https://nbe.edu.in/mainpdf/curriculum/anaesthesiology.pdf>. [Last accessed on 2021 Dec 22].
 15. Ebert T, Fox C. Competency-based education in anesthesiology history and challenges. *Anesthesiology* 2014;120:24-31.
 16. Kapoor MC. Competency based anesthesia education: A welcome step. *J Anaesthesiol Clin Pharmacol* 2021;37:203-4.
 17. Bould MD, Crabtree NA, Naik VN. Assessment of procedural skills in anaesthesia *Br J Anaesth* 2009;103:472-83.
 18. Smith AF, Mishra K. Interaction between anaesthetists, their patients, and the anaesthesia team. *Br J Anaesth* 2010;105:60-8.
 19. Ford SR. Teamwork in anaesthetics and critical care is possible. *Br J Anaesth* 2015;114:349.
 20. Krage R, Erwtaman M. State-of-the-art usage of simulation in anesthesia: Skills and teamwork. *Curr Opin Anaesthesiol* 2015;28:727-34.
 21. Datta R, Upadhyay K, Jaideep C. Simulation and its role in medical education. *Med J Armed Forces India* 2012;68:167-72.
 22. Bhagwat M. Simulation and anaesthesia. *Indian J Anaesth* 2012;56:14-20.
 23. Lohith Kumar HN. Career options in anaesthesiology - Views of a fresh MD anaesthesiology pass-out. *Indian J Anaesth* 2021;65:84-5.
 24. Bhattacharya PK, Nair SG, Kumar N, Natarajan P, Chhanwal H. Critical care as a career for anaesthesiologists. *Indian J Anaesth* 2021;65:48-53.
 25. Pandya ST, Chakravarthy K, Shah PJ, Trikha A. Obstetric anaesthesia as a career. *Indian J Anaesth* 2021;65:43-7.
 26. Misra S, Parida S, Chakravarthy M, Mehta Y, Puri GD. A career in cardiac anaesthesia in India: The heart of the matter. *Indian J Anaesth* 2021;65:12-6.
 27. Malhotra N, Joshi M, Gehdoo RP, Usmani H, Sharma G. Pain medicine as a career. *Indian J Anaesth* 2021;65:73-8.
 28. Khandelwal A, Jangra K, Katikar MD, Durga P, Maheswara Rao GSU. Choosing Neuroanaesthesia as a career: Marching towards new horizons. *Indian J Anaesth* 2021;65:35-42.
 29. Shinde SS, Parak SC, Bhati S, Sahay N, Battu GS. Medico-legal and ethical issues in anaesthesiology profession. *Indian J Anaesth* 2021;65:54-60.
 30. Kulkarni P, Pushpalatha K, Bhat D. Medical education in India: Past, present, and future. *APIK J Int Med* 2019;7:69-73.
 31. Caverzagie KJ, Nousiainen MT, Ferguson PC, Ten Cate O, Ross S, Harris KA, *et al.* Overarching challenges to the implementation of competencybased medical education. *Med Teach* 2017;39:588-93.
 32. Hanley M, Shearer C, Livingston P. Faculty perspectives on the transition to competency-based medical education in anesthesia. *Can J Anesth* 2019;66:1320-7.