

Medical Education Scenario in India Over the Years

TEJINDER SINGH,¹ PIYUSH GUPTA,² SHASHI KANT DHIR³

¹Center for Health Professions Education, Adesh University, Bathinda, Punjab.

²Department of Pediatrics, University College of Medical Sciences, New Delhi.

³Department of Pediatrics, Guru Gobind Singh Medical College, Faridkot, Punjab.

Correspondence to: Dr Tejinder Singh, Emeritus Professor of Pediatrics and Professor of Health Professions Education, Adesh University, Bathinda, Punjab. drtejinder22@gmail.com

Published online: Feb 20, 2023; PII: S097475591600498

The traditional priorities of medicine are considered service, teaching, and research, in that order. However, for various reasons, the order gets changed with teaching getting pushed to the last place. The process of medical education begins with inputs (teachers, students, teaching materials and methodology, and assessment), which undergo certain processes (learning, construction of knowledge and change in learner behavior) and outcomes (clinical competence and better health status of the society). The gap between intended outcomes and actual outcomes is estimated by assessment (and program evaluation), which also provide feedback for both, inputs as well as processes.

In April, 1973, Prof. OP Ghai wrote in *Indian Pediatrics* [1] justifying more time to be given to pediatrics in undergraduate (UG) curriculum, basing it on data from another write-up by Prof. KK Kaul and his study on pediatric content in general practice [2]. Prof. Ghai also listed ‘instructional objectives’ for both UG and postgraduate (PG) students to prepare them for their intended role [1]. These ‘instructional objectives’ do not fit in the traditional definition of specific learning objectives but are based on national health needs, include all domains of learning, list the importance of basic sciences, and elaborate on teaching methodology and the summative criteria to be used for certification. They include observable behavior, multiple domains, elements of integration, communication and leadership, and guidelines for final assessment [1]. Thus, these can be better labelled as competencies. Prof. Ghai also visualized PG students as teachers with good communication skills [1].

A lot of water has flown under the bridge since then. We, herein, focus on major changes in medical education as they happened during the last 50 years, primarily related to admissions, curriculum, internship, and assessment.

THE LAST 50 YEARS

Admissions

From 19 odd medical colleges at the time of independence, the number has now reached 600 plus (may be more by the time you read this). The total number of UG admissions crossed 90,000 this year. The mode of admission; however, has not seen any major change in last half a century. Till the early 70s, the admissions used to be based on marks in qualifying examinations, after which

the system of entrance examinations – for both UG and PG - started. There used to be multiple independent examinations by various states and many private colleges. To avoid hardships to the students, National Eligibility cum Entrance Test (NEET) UG and PG were introduced in the year 2013, and 2017, respectively, at the national level. Despite change in the logistics, the admission is still based on scores in a single high stakes entrance examination, which typically fails to predict the capability of the student to undertake medical studies and focuses only on recall type of knowledge. The stakes are high and there are not many educational benefits [3]. Unfortunately, we do not have meaningful research in this area to tell us if national or single entrance examinations have helped us to get better students. One study; however, did show in a limited way that scores in the entrance examinations had no relation with progress during the UG medical course [4]. The possible changes in the admission criteria have been discussed previously, in this journal [5].



Curriculum

India has largely followed the British model of medical education, which was discipline- and time-based. In the mid-1970s, the Shrivastava committee identified training as general medical practitioner important, who must change his outlook from excessive concern with disease to a role of full social responsibility, and advocated reorientation of medical education (ROME) by national priorities and needs [6]. It went on to state that principles of educational science should find increasing application in the educational process, and that the curriculum should encourage the students to learn by themselves. It also called for establishment of an educational commission for health sciences [6]. During 1989-1995, a consortium of four institutions (AIIMS, Delhi; CMC, Vellore; IMS, BHU, Varanasi; and JIPMER, Pondicherry) engaged in an inquiry-driven strategy to identify the deficiencies in the extant curriculum [7]. Inadequate emphasis on practical skills, insufficient coverage of common diseases, and neglect of behavioral, ethical, social and communication skills were identified as major problems. Concerns were also voiced regarding improving student selection, learning strategies and community orientation [8]. Clear delineation of goals and objectives, innovative teaching-learning strategies, adjustment and updating of course, rationalizing assessment, and emphasis on structured and skill-oriented internship were thought as possible solutions [9]. Establishment of medical education units (MEU) was also emphasized. These influenced the 1997 change, which was a major revision of UG medical curriculum, introducing concepts like integration and self-learning and giving importance to internal assessment. From being a part of general medicine examination since 1977, Pediatrics became an independent subject. Community based medical education also got boost during this revision. The model provided enough freedom to medical colleges to introduce innovations and saw many newer teaching learning and assessment methods being introduced. The 1997 document – specially the role and emphasis on internal assessment - could have been a path changing intervention but could not, due to various reasons [10].

Establishment of health universities was another major development during this period. These Universities were mandated to cover all courses related to health sciences, as well as help in curriculum planning and implementation, promoting innovations and promote research in medical education. However, despite bringing all health courses under one roof, we are still far from comprehensive inter-professional education.

The curriculum proposed in 1997 continued for the

next two decades with many pointing about students failing to acquire clinical skills and focusing on theory component only. The year 2019, saw the introduction of the new competency-based curriculum at both UG and PG level [11]. The UG curriculum involved conceptualization of an Indian Medical Graduate with five roles viz., clinician, leader, professional, communicator and life-long learner. More than 3700 competencies were listed, divided into various domains, and suggestions provided for teaching and assessment [12]. Certain good teaching practices were brought in including foundation course, integration, skill teaching, clerkship method of training, electives and self-directed learning, along with ‘formative only’ assessments. An AETCOM module was introduced for teaching of attitudes, ethics, and communication [12]. Emphasis was laid on skill development, and colleges were mandated to provide skill labs for training. The erstwhile MCI played a proactive role in faculty development [13], prior to its introduction under the name of curriculum implementation support program (CISP), through its network of nodal and regional centers.

Although, it is too early to evaluate the impact of such a model, there are some obvious problems with this, curriculum, which has, interestingly, not listed ‘whole-task’ competencies, and with most of the competencies being at the level of ‘discuss and describe.’ Assessment of such a huge number of competencies remains a challenge because by and large, the assessment is still conventional. Competency-based curriculum is a ‘student-centered’ model and should focus both on the ‘product’ and the ‘process’ rather than on process alone. The present curriculum and its implementation appears to be too tightly structured – right from when to teach, what to teach and how to teach.

There has been an exponential increase in the number of colleges, specializations, super-specializations and sub-specializations. However, we do not seem to have paid enough attention to developing a career path for a medical doctor after five years of training. Till family medicine/general practice is given its due importance, it may be difficult to persuade students to pay serious attention to the listed skills and competencies. The recommendations of the Shrivastava committee focus on the training of the general practitioner [6], and community-based training seem to have got buried under curriculum innovations! There are; however, some ongoing changes to augment community-based education in the form of family adoption program [12].

Impact of coronavirus disease (COVID-19) pandemic on medical education in India (and globally) needs a separate mention [14]. Faced with a sudden catastrophe,

an ill-prepared faculty (in terms of skills) and equally ill-prepared institutions (in terms of infrastructure) rose to maintain the continuity of teaching. Even though it was called 'online teaching,' it largely consisted of using the conventional power points and slides through various online meeting platforms - it therefore, fitted more in emergency remote teaching, than online teaching. This experience has; however, provided us with an opportunity to expand the scope of teaching-learning and continuing professional development using information technology. Though we are back to usual teaching, it would be worthwhile to train the faculty in the use of these techniques, so that it is available to all learners.

Internship

Compulsory rotating internship is a one-year period for providing hands-on experience to the students. ENT and pediatrics were given two weeks tenure in the pre-1997 phase, which was increased to four weeks in 1997. This phase also saw the concept of 1-month elective posting in two of the listed departments. There have been some changes in the pattern with some time being taken off the 'major' subjects and given to 'minor' ones, including one week to ayurveda. Pediatrics posting now is only for three weeks. Competencies/objectives were listed for the interns even in the 1997 curriculum. However, in the absence of any tangible assessment plan, these were not assessed in most colleges or assessed cursorily. The major issues with internship have been the impending PG entrance examinations – so most interns do not take this period seriously, using it for examination preparations, or joining various coaching centers instead [15].

Assessment

It has been rightly said that if you want to change the way students learn, change the way you assess them. This guiding force of assessment is very important – specially for competency-based curricula – but unfortunately neglected or used in an inappropriate way. Assessed in conventional ways, it is unwise to believe that students will make efforts to acquire clinical, behavioral or communication skills.

In the pre-1997 models, assessment was limited to essay type questions for theory, and 'long case – short case – viva – spotting' model for practical skills. Most of the times, clinical examinations became only a test of knowledge, conducted in a clinical setting. There was no direct observation of the students while taking history or performing clinical examination. They also had issues with the proportion of content that could be tested and therefore were not generalizable (and possibly lacking both, validity and reliability). The total marks allotted to

subjects varied, with some getting 300 while others getting only 100. In subjects with a total of 100 marks, each paper was reduced to 40 marks and each question going down to 5 marks, so severely limiting the discriminating ability. Internal assessment was included in the examination scheme; although, for all practical purposes, it was a mini-university examination, used to provide practice to the students for university examination.

The 1997 curriculum brought some changes in assessment pattern, the most important being 20% weightage for internal assessment (IA) in both theory and practical examination, and needing the student to pass before being allowed to appear for university examinations. The IA marks were added to the final scores and counted for the final results – meaning thereby that any shortage in university examinations could be compensated by IA, which was later negated by the courts. Clinical assessment was mostly restricted to one long case, two short cases, spotting and viva voce. Many newer methods were; however, added for assessment including OSCE/OSPE, specially for internal assessment at some colleges.

The 2019 model, by and large, continued with the earlier pattern with few exceptions; although, most experts agree that CBME cannot be assessed using the traditional model [16]. It introduced the concept of 'formative only' assessments, which were not added to total marks. The IA marks are also not added to final scores to decide pass/fail purpose. This has given us the advantage of using IA as a tool for assessment for learning. Each question paper is 100 marks, allowing better sampling of content and supposedly better discrimination. The assessment is still fragmented into domains and does not test competencies. The bigger issue is its continued focus on objectivity, structure and neglect of many domain-independent competencies, which cannot be objectively measured.

Faculty Development

Faculty development (FD) is integral to the success of any educational innovation. The Bajaj committee (1986) had noted that the teachers; though, expert in clinical area, were deficient in teaching [17]. Teacher training in the pre-1997 era was conducted through National teacher training centers (NTTC) established in 1976 at JIPMER, Pondicherry (and later at PGIMER, Chandigarh, IMS-BHU, Varanasi and Maulana Azad Medical College, Delhi) and medical education units (MEU) of a few colleges [18]. The training duration varied from 3 to 10 days, with little longitudinal support or follow up. Some programs required completion of a project also. NTTCs can be credited with creation of a nucleus of educators with training in educational technology. The 1997 curri-

culum re-emphasized the establishment of MEUs in all colleges, while the 2019 model made it mandatory. The establishment of FAIMER regional institutes in 2005 brought in the concept of longitudinal project-based training, online education, and networking. FAIMER also supported some teachers to enroll for a masters and Ph D program in health professions education. Beginning in 2009, MCI institutionalized basic course training, followed by an Advance course in medical education (ACME) in 2014, through a network of nodal and regional centers. ACME was of one-year duration and had a curriculum innovation project as an added component. Both the FAIMER fellowship and ACME also used an online platform for continued academic discussions, networking, and support for 24 and 12 months, respectively. This period also saw the advent of many certificate, diploma, degree and PhD courses in medical education by various universities, mostly in private sector and some of them with an international collaboration. Before introducing the competency-based curriculum, MCI further strengthened faculty training by starting a curriculum-implementation support program (CISP) [13] and training in AETCOM module. We believe that time has now come for moving away from general training in educational technology to more targeted training covering curriculum implementation, adoption of newer methods like online teaching, inter-professional education, and assessment of competencies.

Research in Medical Education

This is an area, where we appear to be lagging. Lack of training in educational research, non-credit to such research in career progression, and lack of avenues for publication could be cited as some of the reasons. A recent publication identified 71 articles over a period of 10 years (2007-2015), most of which were evaluation of innovations at Kirkpatrick level 1 (reactions) [19]. The major focus seems to be on undergraduate teaching and limited to either comparison of two method or description of a supposedly innovative method. There are very few publications on operational aspects, and more importantly on assessment. This is an area which needs priority attention and action. Of course, we need a program evaluation of the new curriculum, which has to move to higher levels from reactions and learning.

Role of Indian Academy of Pediatrics

Indian Academy of Pediatrics (IAP) has played a proactive role in bringing about, supporting, and implementing changes in medical education related to the subject of pediatrics in India. Coinciding with pediatrics being made a separate subject, an IAP-Education Center was created, which played a major role in curriculum formu-

lation, and training of teachers. The Center also published a book, '*Better Pediatric Education*' which was distributed to all medical colleges, with funding from WHO. Subsequently, IAP also formulated curricula for both UG and PG level [20,21]. These were followed all over India (for purpose of both teaching and assessment) till CBME was adopted by the MCI. The academy's journal, *Indian Pediatrics*, also gave more space to articles in medical education, and even brought out a book, *Current Trends in Medical Education* [22]. An Indian College of Pediatrics was created to try and maintain academic standards of various specialty trainings being provided by the IAP.

In the year 2019, IAP released uniform learning objectives for UG course, deriving them from the competencies listed for pediatrics in the MCI document [23]. A national conference on pediatric education was started in the year 2013, to discuss matters related to pediatric education and to update medical teachers. It continues to perform this role till date, under the aegis of IAP Medical Education Chapter, which was created in 2020 to address issues related to medical education.

THE WAY FORWARD

India has adopted CBME for both UG and PG courses. There are teething troubles; however, and periodic updating of regulations indicates that these are being noted and taken care of. Two crucial interventions to make competency model a success are assessment and as a prerequisite, faculty development, especially for competency assessment. We need to have focused training on newer assessment methods so that during formative and IA stage, students benefit by feedback, the driving force of assessment. There is also a need for a program evaluation for CBME to be optimally utilized. We should also start thinking about mandatory accreditation process [24], and working on improving the student selection process to enhance the quality of medical education.

Funding: None; *Competing interests:* None stated.

REFERENCES

1. Ghai OP. Instructional objectives for training in pediatrics – a paradigm. *Indian Pediatr.* 1973;10:199-201.
2. Kaul KK. Undergraduate teaching and general practice. *Indian Pediatr.* 1973;10:203-6.
3. Singh T. Was it wrong to discard NEET? *Natl Med J India.* 2014;27:119-20.
4. Gupta N, Nagpal G, Dhaliwal U. Student performance during the medical course: role of pre-admission eligibility and selection criteria. *Natl Med J India.* 2013;26:223-6.
5. Singh T, Modi JN, Kumar V, et al. Admission to undergraduate and postgraduate medical courses: Looking beyond single entrance examinations. *Indian Pediatr.* 2017; 54:231-8.

6. Ministry of Health and Family Planning, Government of India. Health Services and Medical Education: A Programme for Immediate Action, Report of the Group on Medical Education and Support Manpower (Srivastava Committee Report). 1975. Accessed Dec 26, 2022. Available from: <http://14.139.60.153/handle/123456789/1306>
7. Verma K, Monte BD, Adkoli BV, et al. Inquiry-driven strategies for innovation in medical education: experiences in India. *Indian J Pediatr.* 1993;60:739-49.
8. Paul VK. Innovative programmes of medical education: II. Commentary and lessons for India. *Indian J Pediatr.* 1993; 60:769-76.
9. Kacker SK, Adkoli BV. Need-based undergraduate medical curriculum. *Indian J Pediatr.* 1993;60:751-7.
10. Singh T, Anshu, Modi JN. The quarter model: a proposed approach for intraining assessment of undergraduate students in Indian medical schools. *Indian Pediatr.* 2012; 49: 871-6.
11. Regulations on Graduate Medical Education (Amendment), 2019. The Gazette of India, Extraordinary, Part III Section 4, 2019. Accessed Nov 20, 2022. Available from: https://www.nmc.org.in/ActivitiWebClient/open/getDocument?path=/Documents/Public/Portal/Gazette/GME_06.110.2019.pdf
12. UG Curriculum Volume 2. National Medical Commission. Accessed Dec 7, 2022. Available from: <https://www.nmc.org.in/wp-content/uploads/2020/01/UG-Curriculum-Vol-II.pdf>
13. Curriculum Implementation Support Program. National Medical Commission. Accessed Dec 7, 2022. Available from: https://www.nmc.org.in/wp-content/uploads/2021/08/CISP_I_First_year_Report_2019_final_for_uploading_11.09.2020-converted.pdf
14. Jindal M, Singla A, Khan AM. The Impact of COVID-19 lockdown on Indian medical undergraduate students. *Physician.* 2021;7:1-11.
15. MBBS Community Blog. Anonymous. Accessed on Nov 30, 2022. Available from <http://www.rxpgonline.com/postt299762.html>
16. Schuwirth LWT, Ash J. Assessing tomorrow's learners: In competency-based education only a radically different holistic method of assessment will work. Six things we could forget. *Medical Teach.* 2013;35:555-9.
17. Report of Expert committee. Health Manpower, Planning Production and Management, 1987 (Bajaj Committee). Ministry of Health & Family Welfare. Accessed on Dec 25, 2022. Available from: https://www.nhp.gov.in/sites/default/files/pdf/Bajaj_Committee_report.pdf
18. Srinivas DK, Adkoli BV. Faculty development in medical education in India: Need of the day. *Al Ameen Journal of Medical Sciences.* 2009;2:6-13.
19. Dongre AR, Deshmukh PR. Status of medical educational research in India and way forward. *J Res Med Educ Ethics.* 2019;9:73.
20. Chhapparwal BC, Walia BNS, Bhargava SK, et al. Report of the sub-committee for curriculum in pediatrics in undergraduate medical education. *Indian Pediatr.* 1993; 30: 408-25.
21. Srivastava RN, Mittal SK, Paul VK, Ramji S on behalf of IAP Education Center. IAP Recommendations on Post-graduate Medical Education. *Indian Pediatr.* 2001; 38:847-62.
22. Mishra D, Shah D. *Current Trends in Medical Education.* 1st Ed. CBS Publishers; 2021.
23. Singh T, Gupta P. Indian Academy of Pediatrics releases uniform learning objectives for competency-based curriculum in undergraduate pediatric education. *Indian Pediatr.* 2020;57:182-3.
24. Supe A, Burdick W. Challenges and issues in medical education in India. *Acad Med.* 2006;81:1076-80.