

## Special Article

# COVID Calls for an Urgent Change in UG & PG Medical Examination System in India

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With 542 Medical Colleges and over seventy thousand aspiring students joining for MBBS yearly, the technological advances in Medical Science is not reflected in the Undergraduate, Postgraduate and sub speciality examinations. The questions are out dated essays and short notes, unlike Multiple Choices Questions (MCQ) or Short Best Answers (SBA) that focus on the best choice reflecting current medical advancement. The MCQ and SBA format ensures that the whole syllabus in a subject is covered, eases stress on Universities in employing examiners to evaluate the answer papers of the candidates and reduces overall costs and creates efficiency. MCQs and SBAs will ensure that the written, theory examination focusses on uniformity of questions and answers across India. The practical examination should be time bound for each candidate and should examine a candidate's reaction to common problem that they encounter in everyday clinical situation and the appointed examiners themselves should undergo appropriate training before allowed to examine the candidates. Above all the examiners require following ethical standards and maintaining sanctity of their position. As the pandemic of COVID-19 requiring social distancing, masks and hand hygiene, the practical examination should be using Skills and simulation laboratory's with well-equipped mannequins, simulators, box and Visual Reality (VR) trainers in a skill training workstation can be the best resources in this regard. The COVID is an opportunity to revamp the examination system in India both at Undergraduate and Postgraduate level and this would be of great benefit to all our students in times to come.

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The COVID-19 pandemic has thrown up the unprecedented challenge for reforming the Medical Examination System to suit a new normal. The authors, who are Medical professionals closely involved with the process, propose innovations in theory and practical's that can make examinations possible without raising the risk for doctors, students and patients.

With over 542 Medical Colleges functioning in India under National Medical Commission (NMC), the examination system for awarding diplomas and degrees during the COVID-19 pandemic has to be looked into critically and redefined<sup>1</sup>.

As in developed countries, the Graduate and Postgraduate theory examinations should be implemented uniformly and in a similar pattern across the country. The authors, who have been writing the

### Editor's Comment :

- The examination methods of Indian medical graduates have remained static and rudimentary over time. We have to reflect on what our limitations are, how we can learn from other systems and incorporate technology to ensure more efficient and fair assessments.
- The Covid-19 pandemic had brought added challenges that enforced a paradigm shift requiring us to be innovative through virtual examinations, using mannequins, scripted scenarios and weighing more on formative internal assessments. As students strive to learn the art and science of medicine, teachers should strive to make assessments relevant to the changing needs and times.

theory examination from 1<sup>st</sup> year MBBS to Postgraduate examination in India from 1970 to 1980's have observed no significant change in the examination pattern, both theory and practical.

While India adopted the British system of examination after independence, UK Colleges have overhauled their examination pattern many times, taking into account the advances made in Medical Sciences. The objective of any examination must be clearly defined and capable of measuring the training the candidate had over the years<sup>2,3</sup>. To achieve this, revamping of the theoretical and practical components of medical examinations has to be addressed.

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### Role for Theory Component Revision :

The theory examination should be able to test factual knowledge, application of that knowledge and the clinical reasoning behind a decision using the modified examination pattern<sup>4-6</sup>.

The Undergraduate degree MBBS seems to carry very little value in the current era. Is it because the patients want to see only a specialist? This may partly be the reason but at the end of the Undergraduate training, most doctors feel ill-equipped to take care of patients. This lack of confidence obviously becomes transparent to patients even at the first visit.

The current theory examination is made up of essays and short notes. Our current examination system meticulously explores the theoretical knowledge of the student in a limited section of the subject. Examinations are designed to ascertain what the student knows only a particular condition in depth. The examination evaluates whether the student remembers all the basic sciences related to the field chosen and the knowledge base is assessed through a couple of essays and several short notes. When one screens the questions in the final exams and compares them with the burden of diseases in India, we note that there is a significant disconnect in the assessment and the needs of the population. For example students end up having to know in depth details of Multiple Sclerosis and are not adequately appraised on Common Diabetic Complications such as Diabetic Foot.

Technological advancements have made great strides in Medical Sciences and doctors apply these in day-to-day practice. But the aforementioned examination pattern largely remains unchanged<sup>3</sup>. The metric used remains the same for decades. The question papers are set by each university separately and lacks uniformity in assessing the knowledge of the candidate, although the text books followed by the Graduate and Postgraduate Medical Students, have been rewritten with new editions both by National and International Authors, have made significant changes redefining platforms for learning and acquiring knowledge in all specialities.

Clearly, there is a need to evaluate the overall competency of the student in several domains<sup>7,8</sup>. Theoretical assessment is important to identify the knowledge base. Instead of asking students to write about 10 or 12 topics in the theoretical examination, the knowledge application over several topics can be tested. This can be achieved by implementing Multiple Choice Questions, Single Best Answers and/or Extended Matching Questions (EMQ). Using these

examination pattern, clinical reasoning and application of knowledge in almost all sections of the curriculum can be tested.

In an era where India strives to become self-reliant on local and relevant research, teaching and testing basic statistics and epidemiological understanding should become an essential part of the curriculum and examination<sup>7,8</sup>. It is this knowledge, which helps in planning research projects and thesis hypothesis later in the career. This can become the first step in bridging the gap between the plethora of clinical cases in India and the paucity of research.

The introduction of the common examination system with time bound MCQ's, SBA's and EMQ questions will sharpen the clinical acumen of the candidate, to choose the right answers testing in depth their knowledge base.

To ease the task of each University setting questions, a central pool of question can be created with tens of thousands of questions with the correct answers and these can serve as a common platform for setting up questions for future examinations. These central question banks can be updated every year as per the new knowledge base from rapid advancements in Medicine. Each University can chose from this bank and add to it. Each question can also be given a weightage depending on the correct or wrong answers the candidate give and each paper can examine a candidate by setting a distributed pattern to include both easy must know to more difficult questions. As we proceed to build this repertoire, we should be cognizant of ensuring that the database sufficiently reflects clinical and relevant questions that reflect everyday problems.

This pattern of selecting questions for each examination is practised in developed countries and in some neighbouring countries. The question and answers can be evaluated through digital systems, avoiding precious time of examiners being wasted at university centres for many days, evaluating the theory paper of essays and short notes. This year the Imperial College London had conducted final online exams in an open-book and time bound manner. This reflects the dynamic and responsive innovation during unusual times<sup>9</sup>.

The downside of the currently followed system of theory evaluation is the bias factor, with no uniformity in the metric used and marks offered<sup>3</sup>. The expenses for the enormous quantity of papers used for theory examination and the examiners' evaluation fees can be offset by digital evaluation of answers.

Answers for essay questions and short notes are

often like a soap opera, in our opinion, as the first author had been an Examiner in Medicine in the current Indian system for 24 years. There are instances where the University or the Examination body felt the incompetency of the examiner evaluating the theory and called for re-evaluation. The author did this a few times thereby exposing the weakness and the downside to the essays-and-short-notes based theory examination. This practice leads to delay in the declaration of results, which is unheard of in developed countries.

To evaluate the potential of Medical Students, especially in final year Undergraduate, Postgraduate and sub-speciality examination, the primary objective is to assess the practical learning and ethics embedded in Medical Education. We should always remember the Hippocratic oath stating the obligations and proper conduct of doctors, formally taken by those beginning medical practice. The current examination system lacks in the primary objectives in many ways.

When the first author passed the MRCP UK Medicine Examination in 1981 at a London centre including Part I and Part II, it was time bound multiple choice questions with negative marking for wrong answers. However, this practice of negative marking was abolished later as the examination reform committee felt that every examinee may tick some wrong answers and punishing the candidates by negative marking was inappropriate.

#### **New System of Practical examination :**

The practical examination should be conducted under secrecy with utmost security with anonymity of patients, their medical condition and diagnosis, enabling the candidate to examine with confidence, humility and politeness<sup>3</sup>. This practical examination should be time-bound for each candidate to assess his or her competency, be it Undergraduate, Postgraduate or Sub-speciality examinations<sup>4</sup>.

Evaluation of professional skills and attitudes, communication skills and awareness of Legal and Ethical Knowledge is needed<sup>10</sup>. Communication skill should look at the ability of a student to communicate with the patient and the ability to liaise with the Senior and Junior Colleagues, Nursing and other Paramedical staff.

What about Postgraduates who specialise? Can their overall competency in the field they have chosen be assessed and the confidence needed instilled?

The capability to adapt the theoretical knowledge to a particular patient, identifying the possibilities in that patient and arriving at a treatment plan is important. Communicating the management plan, using terms

the patient understands and with necessary empathy is the next task. In doing so, being aware of any ethical dilemmas or legality issues is important. If the speciality is a surgical field, the Postgraduate days are spent in acquiring the skills needed for the practice. The current examination pattern, however, is not able to judge the competency of the surgical or procedural skills of the candidate. If the person is able to memorise the steps of a procedure and relay it during the examination, they are deemed to be competent. This cannot be the ideal way of assessment.

The authors, who are examiners for both Indian Examination and UK Examination System, find that the downside to the Indian examination is exposed in terms of examiners mostly turning up late at examination wards, lack of application in time spent on each candidate, no guidance from Universities/non-compliance by examiners on stipulated level of assessment of knowledge for each candidate, instances of intimidation of the candidates through conversation by examiners which goes beyond the rule of examination and the use of mobile phones by examiners during practical examination are some of the many deficiencies and poor practices of our practical examination system which require reform<sup>4</sup>.

The clinical competency relies on taking an appropriate history, conducting an examination and planning further tests and management. Practical clinical skills can be judged from the candidate performing the procedure in front of the examiners. Obviously, patients or volunteers cannot be subjected to this demonstration. Advances in simulation labs to test skills of the candidates with well-equipped mannequins, simulators, box or VR trainers in a skill training workstation should be part of all Medical School Teaching Programs and can be the best resources in this regard for assessment as well.

#### **Scripted Scenarios, Surrogates and Examinees :**

Creating scenario-based questions on different aspects, with each scenario taking only 10-15 minutes for assessment is the next step. This process should ensure that there is no ambiguity in the questions or in the answer expected. Using scripted scenarios and volunteers trained to be role players, communication skills can be assessed. With the examination pattern standardised, containing questions for different components and a set of trained examiners, the whole examination can be conducted over two days in each centre.

The challenge in this multiple domain assessment is the time factor spent for each candidate and standardisation. Looking at Medical Examinations

overseas, which have adapted to this model over the last few years, standardisation has been achieved through meticulous planning and training of examiners. Yes, training examiners is an important step in achieving standardisation.

The COVID-19 situation has also reinforced the importance of regular, competency-oriented, fair internal assessments that would routinely monitor performance.

These are COVID-19 times, which started in March, 2020, and the end is not on the horizon and with huge spread in India: nearly 50,000 to 60,000 people getting infected every day irrespective of age, gender, profession and socio-economic status. Over one hundred doctors have succumbed to COVID-19 and other health care workers are also infected.

A webinar was conducted on May 20 under the aegis of Nitte University Mangalore, led by Vice-Chancellor Prof Satheesh Kumar Bhandary. The panel included Prof S Sacchidanand Vice-Chancellor of Rajiv Gandhi University, Bangalore. Dr Shiva Kumar Mishra Vice-President of the National Board of Medical Examination and Dr Rajen Sharma, National President of the Indian Medical Association, besides the authors.

The changes to be made in the Medical Sciences examination pattern were discussed. Prof PV Vijayaraghavan, Vice-Chancellor, SRIHER, Chennai strongly suggested distance based use of standardised patients and computer assisted mannequin based assessment for future practical examinations. National Board of Examinations have already introduced Objective Structured Clinical Examination (OSCE) as a path forward.

As social distancing, masks and hand sanitisation are the primary preventive methods recommended by WHO and the Indian Council of Medical Research, it was felt that the practical examination in medical sciences requires revamping to prevent the spread of infection from different individuals who are asymptomatic carriers of COVID-19.

The health of the individual patient used in a hospital ward for practical examination, the examinees, other supportive staff and examiner are at risk of COVID-19 infection. The purpose of conducting a practical is to test the skills of individuals who are appearing for the

examination to give a pass or fail. Thus close contact, non use of mask and compromise of hand hygiene, present a real world risk of infection for all stakeholders.

### Recommendations for Effective Solutions for Practical Examinations :

- (1) Conduct practical's by virtual examination using digital technology/computer assisted mannequins.
- (2) Time-bound practical examination to avoid lengthy questioning and assessment of examinees.
- (3) Training of examiners through webinars prior to practical examination and strictly follow guidelines.
- (4) Examiners to maintain the sanctity of examination.
- (5) Multiple choice questions, Short best answers or Extended matching questions for theory examination; maintain uniformity nationally. Avoid essays and short notes to reduce University Examination Costs.
- (6) Use internal marks obtained by candidates as a platform for their performance in the practical examination.

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