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Concept Proposal for Nationalised Formative and Summative Assessments to Enhance the Preparedness of Medical Students for the National Exit Test (NExT) and Solution for Low Resource Countries: Insights from NBME Examinations in the USA

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ABSTRACT

The National Exit Test (NExT) is planned to have a nationalised uniform assessment system for Indian medical graduates. This, being a new concept in India, the preparedness of students for such assessment needs to be under consideration. USMLE is a time-tested model in the United States of America. NBME test scores in the USA are intended for summative assessment of medical students and closely mimic the USMLE scores. We propose a model of nationalised formative and summative assessments as a preparedness tool for NExT that can be adapted by the NMC to have uniform and high-quality holistic assessment tools for Indian medical graduates.

Keywords: NExT Exam, India, USMLE, NBME, NMC, MBBS

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INTRODUCTION

To protect public health, the national medical commission (NMC) of India announced in the 2019 gazette notification a High-quality exit examination named the 'National Exit Test' (NExT) for Indian medical graduates, to enhance the standard of medical education and bring uniformity.¹ The examination has not commenced yet but is intended to be initiated in 2023 or 2024. This will be the first medical exit examination in India. As of now, India has a final MBBS examination conducted at the medical college level under their state-university supervision, and the mode of assessment includes essay questions, short answer questions, and a few

MCQ-based questions followed by a clinical examination. There is no uniform assessment at the national level leading to significant inter-state and inter-college differences in the standard and quality of knowledge and skills of medical graduates in India. NExT is a welcome step in the direction of a uniform assessment system for Indian medical graduates at the national level.

Countries like the USA have had exit examinations for the past six decades, currently known as the United States Medical Licensing Examination ('USMLE'), which has been computerised since 1999.² Theory examinations for medical students in medical colleges in the USA are similar to those of final exit examinations. Caribbean Medical schools

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have also followed a similar pattern. In the year 2021, the USA had a 95% pass rate for USMLE step 1 test takers and 97% for step 2 test takers.² We would like to explore the preparedness tool for undergraduate theory assessments for students attempting the USMLE, as they are having a significant success rate in their exit examinations.

The information available about the examinations and curriculum was extracted from the official websites of NMC, USMLE, the national board of examination in medical sciences (NBEMS) and other universities that were mentioned. The assessment data was obtained from the Association of American Medical Colleges (AAMC) website. A web search was made using the google search engine to obtain useful resources that we might include.

Postgraduate entrance exam in India and its comparison with USMLE:

All India Postgraduate National Eligibility Entrance Test (PG NEET) was introduced in 2013.³ It is an entrance examination used to select medical students for postgraduate programs but is not an exit examination. Students prepare for several months after graduating with their MBBS to qualify for PG NEET. Much longer preparation is required to get high scores. The United States Medical Licensing Examination (USMLE) is a necessary medical licence to practise in the United States of America (USA). The FSMB (Federation of State Medical Boards) and NBME (National Board of Medical Examiners) are co-sponsors of the USMLE. The USMLE is a three-step exam and measures a candidate's ability to apply the knowledge, concepts, and patient-centred skills that form the basis for safe and effective care.

In the USA, the National Board of Medical Examiners® (NBME®), which was established in 1915, offers examinations for basic science subjects examinations and examinations developed using the customised assessment services (CAS) program.^{5,6} These tests are usually referred to as the shelf examinations or "off-the shelf-tests". The NBME website curates a comprehensive list of sample content and questions for each shelf examination.⁷ The assessment

The chart below represents the distribution of scores for recent examinees from US and Canadian medical schools taking Step 3 for the first time. Reported scores range from 1-300 with a mean of 226 and a standard deviation of 15.

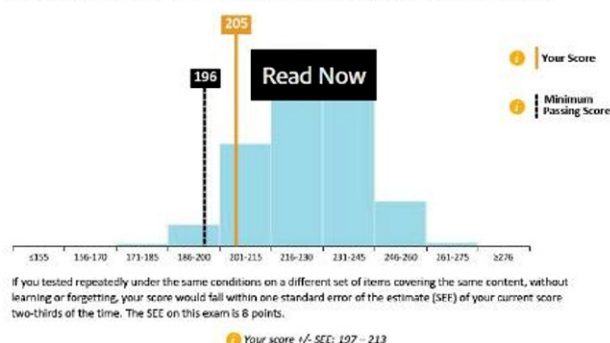


Figure 1. Image showing a sample scorecard of USMLE step3 from the USMLE website.¹¹

questions on NBME® Shelf exams are intended to be similar to those of USMLE Step 1 and 2 examinations. The assessments are given for a structured period of time under supervision, using the NBME software that closely mimics the software used for the USMLE Step 1 and 2 examinations.⁸ Students can take these tests to assess their preparation and improve their standards with timely evaluation. Students with poor performance on the test can be identified and counselled. Atsusi Hirumi et.al, mentioned a very consistent positive correlation between off-the-shelf examinations and scores in licensing examinations.⁹ In another study by Carol Morrison et.al, Logistic regression analyses found that higher composite scores were associated with a greater probability of passing Steps 2 and 3. These studies indicate the necessity of shelf examinations for higher student scores.¹⁰ **Table 1** represents the high pass percentages that exist in the USMLE step1, which is an indicative of positive impact of the shelf examinations.

NMC's competency-based undergraduate curriculum mentions that a minimum number of assessments should be taken by every department and at the end of a rotation, clinical assessments shall be conducted for each clinical posting in the professional year.¹¹ **Figure 1** showing the sample scorecard of USMLE is added for the proper understanding of the scoring pattern.

Concept proposal for nationalised formative and summative assessments:

There is a need for a nationalised examination after the clinical postings that are similar to NBME clinical subject examinations. This nationalised examination would improve the transfer of knowledge and help students be thoroughly prepared for the exit examination that has been recently announced.

NMC learning platform for nationalised internal assessments is essential for all medical students and can be started as an online application that is affordable to students, where

Table 1. Pass and fails percentages of USMLE Step 1 Applicants, 2020 - 2021.⁴

Examinees from US/Canadian schools	2020 number tested	2020 number passing	2021* number tested	2021* number passing
1st Takers	20,043	97%	23,078	95%
Repeaters	19,772	98%	22,280	96%
DO degree	5274	95%	5,365	94%
1st takers	5,235	96%	5,309	94%
Repeaters	39	74%	56	75%
Total	25,617	97%	28,443	95%

they can take tests for a structured amount of time under surveillance. With a unique registration ID, students can take multiple optional tests on the topics of their choice. Every 6 weeks a nationalised mandatory proctored Test may be taken with a fixed time structure under online surveillance. Every medical college needs a testing centre with 100 to 250 stations. The scores of this formative and summative assessment neither add up nor diminish the scores to the final exit examination but serve as a feedback system for students and instructors for educational quality and help to improve peers with poor performance. These tests need to be modelled similar to those of the final exit examination. The questions from previous years can be used as sample questions that would help students prepare for the mandatory assessment tests as well.

65% of Students in a study preferred university subject examinations to be changed to Next examination format, that is in the MCQ format.[14] These university subject examinations can also be nationalised to bring universal standards across the country similar to NBME subject examinations in the USA.

There are also online applications available like the association of professors of gynaecology and obstetrics (APGO) to registered medical colleges. They provide 50 interactive videos, 600 multiple-choice questions for students and the results of these assessments are sent back to the respective colleges.^{12,13}

NMC has approved the 'Basic course in biomedical research' which is offered by ICMR-NIE, that is mandated to all postgraduates and faculty. Similarly, NMC can implement its learning system from first year MBBS with lectures, pre and post lecture questions, that can be monitored by the faculty, principal and NMC. This platform can provide higher transfer of knowledge to students and a monitoring system.¹⁴

CONCLUSION

NExT is a welcome step in the direction of a uniform assessment system to enhance the standard of medical education for Indian medical graduates at national level. Being this a new concept in India, preparedness of students for such assessment needs to be ensured. Indian students are accustomed to digital learning, as many high schools are adapting digital mode of education. Similar models are time tested in other countries such as the USA where NBME test scores intended for subject assessment closely mimic the USMLE scores. A similar model of nationalised internal and subject assessments may be developed by NMC to ultimately have a uniform and high quality holistic assessment tool for Indian medical graduates and solution for all low resource countries.

END NOTE

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