

# Perception of Early Clinical Exposure (ECE) among Phase I MBBS Students in a Medical College in Northeastern India

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## ABSTRACT

**Background:** Early Clinical exposure (ECE) is a Learning methodology in Medical Education, which encourages exposure of the medical students to the clinical patients as early as the first year of medical college (Phase I MBBS). It helps them in applying basic science concepts to clinical patient care. **Objective:** To assess and analyze the Perception of Early Clinical Exposure (ECE) among Phase I MBBS students. **Methods:** This was a cross-sectional study conducted January 2024 to March 2024 of 100 Phase I MBBS students who were first exposed to four Modules of ECE in both hospital and classroom settings. The outcomes and effectiveness of the students were then assessed and analyzed by a pre-structured, self-administered electronic questionnaire which contained both open-ended and close-ended items. Evaluation was done by statistical analysis of qualitative data and quantitative analysis of student comments using thematic analysis. **Results:** 97.6% of the students felt that Early Clinical Exposure is important in Phase I (1<sup>st</sup> year) while 2.4% of the participants were neutral on the question. 92.8% of students felt that ECE helped them in correlating physiology concepts with clinical cases while 86.9% of students felt that ECE helped in the retention of the topic. Majority of the students reported that ECE helped them in understanding and knowledge of the topic and provides them an exposure to reality of patient care and medical environment. Students also expressed the need for increasing the frequency and duration of ECE sessions. **Conclusion:** Our study reveals that Phase I MBBS students regard Early Clinical Exposure (ECE) as a pivotal methodology for enhancing their comprehension of fundamental scientific principles and their ability to correlate these principles with clinical applications. Moreover, they recognize ECE as a platform that immerses them in the realities of patient care. These findings underscore the imperative of continual assessment and enhancement in the implementation of ECE.

**KEY WORDS:** Early Clinical Exposure, Medical Education, Physiology, Assessment, Competency, Professionalism.

## Introduction

Early Clinical exposure (ECE) is an innovative teaching learning method, which encourages exposure of the medical students to the clinical patients as early as the first year of medical college (Phase I MBBS). ECE sessions drive the medical student in various ways like making them academically strong, improve their communication skills, improved clinical skills

and boosting their confidence. ECE is one form of vertical integration model between pre-clinical and clinical subjects.<sup>[1-3]</sup>

The mainstay of traditional medical education has been didactic lectures. However, ECE was suggested by the former Medical Council of India (MCI) in its Vision-2015 paper as a first step toward Competency Based Medical Education (CBME) curriculum reform.<sup>[4]</sup> The National Medical Commission (NMC) issued the Competency Based Undergraduate Curriculum (MCI) in 2018, which was incorporated into the MBBS course starting from 2019. The curriculum and training program for Indian Medical Graduates (IMG) will include Early Clinical Exposure (ECE).<sup>[5,6]</sup> Within the conventional medical education courses, students acquire theoretical knowledge in a setting devoid of patient interaction. Pre-clinical years for

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medical students have traditionally been spent in labs and classrooms. Within the conventional medical education courses, students acquire theoretical knowledge in a setting devoid of patient interaction. ECE serve as a liaison between the clinical and pre-clinical domains.<sup>[1]</sup>

It has been proposed that ECE can assist first-year medical students in reducing stress and inspire them to get a deeper understanding and awareness of the medical field. ECE is intended to be the "beginning of a lifelong learning focused on the patient" and involves both practicing doctors and patients in active, experiential learning. It appears that there is no one "optimal" approach to ECE. The implementation of a brief ECE program could have a positive impact on medical students' attitudes toward medical school, increase their self-assurance that they can achieve in the medical field, and provide them with a sense of social, emotional, and professional fulfillment. An early clinical exposure program that mostly consists of a hospital tour to learn about patients' needs and the healthcare system has been introduced using a variety of teaching techniques. This sparks students' curiosity and improves their education.<sup>[6-9]</sup>

ECE can be applied in three different ways.<sup>[10]</sup> College or a classroom setting where the fundamental science and clinical science teacher can bring in a cooperative, straightforward patient to talk in-depth with the students' classes. In hospital settings, students can be shown about the "wards/clinics" to help them become familiar with the procedures and guidelines. The learner's abilities and comprehension of illnesses and conditions can both be improved by these two "patient encounters." "Community setting" exposure is the third way that patients are exposed to the students. The goal for which we wish to employ ECE will determine which of the three settings should be used.<sup>[1]</sup>

Reviewing the literature for Indian studies on ECE reveals that ECE is implemented recently in the competency-based curriculum, but it is still in infancy.<sup>[11]</sup> Although ECE is recommended, there are still many obstacles to overcome before it can be effectively applied at the medical college level in the current Indian context. These include the large class sizes-between 150 and 200 students per MBBS batch-and the dearth of qualified faculty, particularly in pre-clinical subjects.<sup>[12]</sup> Moreover in our Northeastern State of Manipur which is relatively

remote and still lagging in terms of infrastructure and faculty the effectiveness of implementation of ECE is not sufficiently known. Therefore, this study was conducted to assess the effectiveness of ECE as an educational tool, to determine its feasibility and acceptability by compiling the perceptions of the students about it.

## Materials and Methods

This was a cross-sectional study conducted by the Department of Physiology in collaboration with Departments of Medicine and Surgery from January 2024 to March 2024. After taking approval from the Institutional Ethical Committee, 100 students of the phase I MBBS (First year medical students) were recruited into the study and were explained the procedure and purpose of the study and written informed consent was taken from the participants. 86 students gave their consent to participate in the study while 14 students did not give their consent and were excluded from the study.

In our study we conducted 4 modules which included two classroom sessions and two hospital-based sessions on the topic Clinical Examination of Respiratory System. An Orientation session of one hour was held to familiarize the whole procedure. Two Classroom sessions were conducted by faculty of Physiology Department where case scenarios (paper cases) were given to the students which included the History, Examination, and Investigation of the case. The students were divided into small groups (6-10 students in each group) and tasked to correlate the case scenario with underlying physiological concepts. In the subsequent session the students presented their findings and explanation, and answers were provided by the faculty.

The two Hospital sessions were conducted by faculties of Clinical Departments in their wards/Seminar Rooms after dividing them in small groups of 8-10 students each. First session was on working structure of the Ward/OPD and General examination of patient and the second session was on Respiratory examination of a patient.

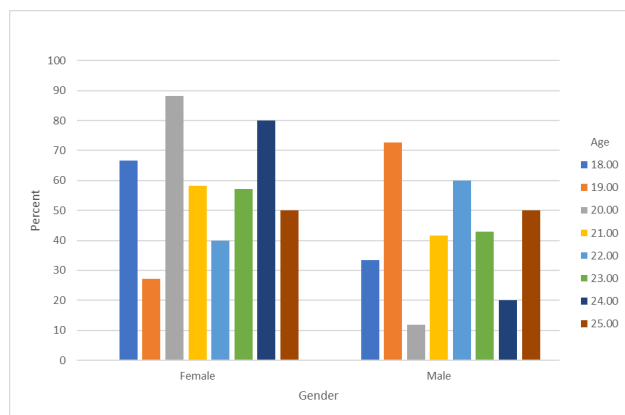
At the end, A feedback questionnaire designed and validated by experts of the Medical Education Unit for Phase I MBBS students was administered to the participants in electronic google form which consisted of open-ended (3 items) and closed ended (13 items). The closed ended questions were to be answered based on a five-point Likert scale from

strongly disagree to strongly agree. The Scoring system was coded as Strongly Disagree-5, Agree-4. Neutral-3, Disagree-2, Strongly Disagree-1. Qualitative data from the three open-ended questions, was coded and categorized for emerging themes using thematic analysis.

Data Collection and Statistical analysis was done by using SPSS (Statistical Package for Social Science) Version 21.

## Results

Out of the 100 phase I (1<sup>st</sup> year MBBS) students 84 students (84%) completed the questionnaire. Out of this 49 (58.3%) were Females and 35 (45.7%) were Males. The Mean age of the participants was 21years (SD-1.5) with age ranging from 18-25 years. Figure 1 shows the age composition of the students according to their gender.



**Figure 1: Age composition of the participants according to Gender**

Table 1 shows the perceptions of the students towards early clinical exposure (ECE). 97.6% of the students felt that Early Clinical Exposure is important in Phase I (1<sup>st</sup> year) while 2.4% of the participants were neutral on the question. 96.5% of students agreed that ECE improved their attention in class while 92.9% participants felt that ECE helped in understanding the topic better.

92.8% of students felt that ECE helped them in correlating physiology concepts with clinical cases while 86.9% of students felt that ECE helped in the retention of the topic taught but 13.1% students remained neutral on the question.

Almost 97.6% of students reported that ECE will help them in lifelong learning of the topics while 85.5% of

students were satisfied with the role of the facilitator or teacher in the conduct of ECE.

On Qualitative Analysis of the three Open ended questions students reported that ECE helped them in understanding of the topic and in the integration of theoretical knowledge with its applied clinical aspects. The analysis also reported some suggestions for improvements and areas which need to be explored further. Table 3 shows the summary of some emerging themes and typical student comments regarding ECE.

## Discussion

In our present study, the students gave overall positive feedback on the implementation of ECE implemented in Hospital and classroom settings. This is in agreement with similar studies conducted by Bhardwaj N et al. and Sathishkumar et al. which reported an overall positive perception of ECE as an educational method among the students.<sup>[13,14]</sup> Our study reported that ECE helped in improving the attention of the students, understanding the topic being taught and in retention of the topic better. The findings are similar to findings of other studies conducted by Ewnte, B et al. and also studies in Iran.<sup>[15,16]</sup>

In the present study over 93% of the students reported that ECE helped in correlating basic science concepts with applied clinical aspects and in clinical application of the knowledge. The finding is in agreement with other studies conducted by Sirsikaar N et al. and others which showed that ECE facilitated integration of basic and clinical sciences, improved students' attitude towards basic sciences, and provided students' insight into the psychosocial aspects of medical care.<sup>[6,17,18]</sup>

The present study also reported that ECE helped the students recognize attitude, ethics, and professionalism as integral part to the doctor-patient relationship. Other studies have reported similar findings which show that ECE gives an additional advantage in soft skills during exposure to real patients in hospital setting. The field of ECE provided them with an introduction to the hospital setting, professional qualities, and their prospective responsibilities within the healthcare team.<sup>[18,19]</sup>

However, it is to be noted that Implementation of ECE is not easy and is a time-consuming process and may not be applicable to every topic. Moreover, there

**Table 1: Students perception towards Early Clinical Exposure**

Sl. No.	Question	Strongly agree	Agree	Neutral	Disagree	Strongly Disagree	Mean $\pm$ SD
1.	Do you feel ECE (Early Clinical Exposure) is important in 1 <sup>st</sup> year MBBS	45 (53.6%)	37 (44%)	2 (2.4%)	0	0	4.51 $\pm$ 0.548
2	Did ECE improved your attention in class	47 (56.0%)	34 (40.5%)	3 (3.6%)	0	0	4.52 $\pm$ 0.569
3	Did ECE helped you to understand the topic better	52 (50%)	36 (42.9%)	6 (7.1%)	0	0	4.42 $\pm$ 0.626
4	ECE helped you in correlating physiology with clinical case	37 (44%)	41 (48.8%)	5 (6%)	1 (1.2%)	0	4.35 $\pm$ 0.652
5	Did ECE helped in retention of the Topic	33 (39.3%)	40 (47.6%)	11 (13.1%)	0	0	4.26 $\pm$ 0.678
6	ECE will help me in lifelong learning of the topics when integrated with applied aspects	54 (64.3%)	28 (33.3%)	2 (2.4%)	0	0	4.61 $\pm$ 0.535
7	I am satisfied with the involvement and guidance of teacher in ECE	26 (31%)	50 (59.5%)	4 (4.8%)	1 (1.2%)	3 (3.6%)	4.13 $\pm$ 0.847
8	Do you prefer ECE over traditional teaching i.e., physiology lectures without ECE	20 (23.8%)	32 (38.1%)	15 (17.9%)	8 (9.5%)	9 (10.7%)	3.54 $\pm$ 1.255
9	Do you think that ECE session was helpful in clinical application of your knowledge	38 (45.2%)	44 (52.4%)	1 (1.2%)	1 (1.2%)	0	4.41 $\pm$ 0.585
10	I was motivated and interested to learn the physiology of the topics after ECE	35 (41.7)	38 (45.2%)	11 (13.1%)	0	0	4.28 $\pm$ 0.686
11	ECE has played a role in helping me perform better in examinations	30 (35.7%)	35 (41.7%)	19 (22.6%)	0	0	4.13 $\pm$ 0.756
12	ECE should be incorporated along with regular lectures for other subjects in first year of medical school for undergraduates	36 (42.9%)	39 (46.4%)	8 (9.5%)	0	1 (1.2%)	4.29 $\pm$ 0.74
13	ECE helped me recognize attitude, ethics, and professionalism as integral to the doctor–patient relationship	37 (44.4%)	43 (51.2%)	4 (4.8%)	0	0	4.392 $\pm$ 0.581

Table 2: Summary of perception of students of ECE as a teaching method among Phase I medical students						
Variable	Mean	Median	Std. Deviation	Percentiles		
				25	50	75
Do you feel ECE (Early Clinical Exposure) is important in 1 <sup>st</sup> year MBBS	4.5119	5	0.54869	4	5	5
Do you think that ECE session was helpful in clinical application of your knowledge	4.4167	4	0.58512	4	4	5
Do you prefer ECE over traditional teaching i.e., physiology lectures without ECE	3.5476	4	1.2554	3	4	4
ECE should be incorporated along with regular lectures for other subjects in first year of medical school for undergraduates	4.2976	4	0.74088	4	4	5
ECE helped me recognize attitude, ethics, and professionalism as integral to the doctor–patient relationship	4.3929	4	0.58119	4	4	5

Table 3: Themes and comments of students regarding ECE (Thematic Anlaysis)		
Sl. No	Themes	Comments
1.	Understanding and knowledge of the Topic	<ul style="list-style-type: none"><li>• Helps in understanding the topic better.</li><li>• It makes the topic easy and make it simple for better understanding.</li><li>• ECE Needed for better understanding of the topic.</li></ul>
2.	Integration with Clinical learning	<ul style="list-style-type: none"><li>• It helps in correlation with the theoretical knowledge with is clinal application.</li><li>• ECE can correlate theory taught in class with the applied clinical aspects.</li><li>• ECE act as bridge between preclinical disciplines and clinical disciplines.</li></ul>
3.	Attitude and Pro-fessionalism	<ul style="list-style-type: none"><li>• Early clinical exposure is invaluable for aspiring medical professionals as it provides a firsthand glimpse into the reality of patient care and the medical environment.</li><li>• It should be helpful to become a good doctor in future.</li><li>• It is very important as it will helps us to develop attitude and professionalism.</li></ul>
4.	Areas of Improve-ment	<ul style="list-style-type: none"><li>• Increase frequency and duration of clinical exposures to provide more comprehensive experiences.</li><li>• It would be really helpful if the frequency of ECE was increased.</li><li>• Give proper guidance about it.</li></ul>

are some challenges in coordination with different clinical departments and patients.<sup>[1]</sup>

The limitations of our study were its single center study and findings may not be generalizable and also all aspects of the ECE might not have been covered by Methods used.

ECE however is an excellent methodology which adds relevance to basic science learning and facilitates early involvement in patient care learning and health care environment. And also provides an additional exposure to ethics, attitude and professionalism part of the Doctor-patient relationship.

Conclusion

The study concluded that ECE is an effective learning tool in medical education which provides the students with effective tool to correlate basic science learning with clinical case learning. Our study illuminates ECE’s profound impact, elucidating its role as a catalyst for student motivation and comprehension, while concurrently fortifying long-term retention. Beyond mere didactics, ECE serves as a channel to immerse learners within the dynamic socio-cultural context of healthcare, fostering a holistic understanding and empathy vital for future medical practitioners This paradigm shift underscores the indispensable role of ECE in cultivating proficient and empathetic healthcare professionals who are adept at navigating the complexities of modern healthcare.



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