

# Introduction of Early Clinical Exposure(ECE) in 1<sup>st</sup> year M.B.B.S Students in the Department of Physiology

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## Abstract

**Background:** Medical council of India regulations on Graduate Medical education 2012 states that “Indian Medical Graduate should possess requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician of the community while being globally relevant”<sup>1</sup>.

Early Clinical exposure (ECE) is a teaching learning methodology, which orients medical students towards actual clinical scenarios and helps them correlate their theoretical knowledge with real life situations in the first year of medical college.

**Methodology:** The project was done in the department of physiology at PIMS Medical College, Jalandhar. The ECE program was used as a supplement to the traditional lectures in Nervous System Physiology. One hundred and fifty (150) first year MBBS students participated in early clinical exposure program conducted in the year 2017–18. A Feedback questionnaire (including both open and closed ended questions), after getting validated by the faculty were filled by the students. Students were also encouraged to give their written open comments anonymously.

Post session feedback from the students was taken by Questionnaire graded on Likert’s scale.

**Results:** All the students commented that ECE helped them in their understanding of Nervous system Physiology. Most (63%) appreciated the synchronization of classroom knowledge with clinical exposures, and thought that integrated teaching helped in better understanding of practical applications of physiology (65%).

**Key words:** Early clinical exposure, first year Medical students, Traditional teaching.

## Curriculum Innovation Project

### Background

Medical council of India regulations on Graduate Medical education 2012 states that “Indian Medical Graduate should possess requisite knowledge, skills, attitudes, values and responsiveness, so that he or she may function appropriately and effectively as a physician

of the community while being globally relevant”<sup>[1]</sup>. This mindset needs to be developed. Need to integrate physiology with clinical scenarios is further emphasized by MCI vision 2015 document.

Early Clinical Exposure (ECE) provides a clinical context and relevance to basic sciences learning. It also facilitates early involvement in the healthcare environment that serves as motivation and reference point for students, leading to their professional growth and development.<sup>[2]</sup>

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The early years of medical students hardly provides them with any clinical experience. Not only it is seen that clinical relevance is an important factor for retention of Basic science knowledge, it also forms part of higher domains of learning.

### **The need for Early Clinical Exposure:**

For generations, medical students have spent the preclinical years in classrooms and laboratories, memorizing body parts and dissecting specimens, eagerly anticipating the clinical years when they would see and learn from patients. This divide between preclinical and clinical years has been the norm since a century ago providing a theoretical basis for clinical medicine<sup>[4]</sup>. ECE Act as bridge between preclinical disciplines and clinical disciplines.



ECE also has potential benefits for teachers, healthcare organizations, patients, and populations<sup>[4]</sup>. Medical students undertaking preclinical studies may become exhausted while coping with the large volume of study contents<sup>[5, 6, 7]</sup> leading to decreased motivation and inadequate self-directed learning<sup>[8]</sup>. In addition, a failure to recognize the importance and relevance of the preclinical knowledge to their later clinical studies leads some students to lose their study interest and motivation<sup>[9]</sup> Motivation comprises intrinsic motivation, which refers to doing something because it is inherently interesting or enjoyable, and extrinsic motivation, which refers to doing something because it leads to a separable outcome<sup>[10]</sup>. Lack of early clinical experience has shown to demotivate students and make them prone to negative emotions when they finally enter the clinical environment<sup>[11]</sup> On the other hand early clinical exposure “helps medical students socialize to their chosen profession. It helps them acquire a wide range of subject matter and makes their learning more real and relevant. It has potential benefits for other stakeholders, notably teachers and patients. It can influence career choices<sup>[12]</sup>. Some of the advantages of early clinical exposure identified

in the literature are that ECE forms a crucial part of initiation into medicine, smoothens the transition from layperson to student physician, provides an opportunity to bring social relevance and contextualize basic science learning, provides teaching and learning of basic clinical skills, enhances student motivation and encourages the students to learn professional behavior<sup>[13]</sup>. Students perception of advantages of ECE were that it provided important validation of the student’s decision to go to medical school, it was a lifeline that helped the student stay focused on their studies and provided opportunity to establish a link between the basic sciences concepts and actual patient cases<sup>[12, 13]</sup>. Faculty perception of advantages of ECE were that it provided a more integrated approach to teaching basic sciences and clinical medicine, increased excitement for learning by students, provided better comprehension of basic science knowledge<sup>[12, 13]</sup>. Importance of ECE can be explained in one line by Benjamin Franklin’s words of wisdom:” Tell me and I forgot, teach me and I may remember, involve me and I learn” .

### **Aims**

Introduction of ECE to undergraduate first year MBBS medical students in Physiology.

### **Objectives of the study**

The objectives of early clinical exposure of the first-year medical learners are to enable the learner<sup>[1]</sup>:

- (a) Recognize the relevance of basic sciences in diagnosis, patient care and treatment.
- (b) Provide a context that will enhance basic science learning.

This will help the students to overcome their pressures and anxieties and motivate them to develop a better insight into the medical profession.<sup>[14]</sup> It will also lead to a positive influence in the attitude of the student towards medical education which will help them to achieve social as well as professional satisfaction<sup>[15]</sup>. As students face eternally growing amount of information in the medical sciences, ECE will increase their exposure to clinical problems and thus prepare them to be up-to-date physicians throughout their careers<sup>[16]</sup>.

### **Methodology**

The project was done in the department of physiology

at PIMS Medical College, Jalandhar.

Conduct of session:

The ECE program was used as a supplement to the traditional lectures in Nervous System Physiology. The program constituted of three case based lectures shown with the help of videos in Basal Ganglia and Cerebellum and Language(Aphasia)pathophysiology. The case based lectures were taken at the lecture hall with the help of an LCD projector.

Study design

Participants

One hundred and fifty (150) first year MBBS students participated in early clinical exposure program conducted in the year 2018-19.

### Data Collection and analysis

Though attendance for the ECE program was compulsory as per MCI and University guidelines, participating in the program evaluation and giving feedback was strictly on voluntary basis. Informed consent was obtained from the participants. The study was approved by the Institutional Human Ethics committee.

Selection of topics was done with an intention to expose the students to a variety of learning experiences involving all the three domains of learning- cognitive, psychomotor and affective. The learning objectives for each session were chosen carefully in view of student's prior knowledge, the availability of clinical material and relevance. Based on the learning objectives, questionnaires were formulated for all the sessions.

### ECE sessions

- **Case 1:** case of Cerebellar disease shown using video (downloaded from YouTube) demonstrating all signs and symptoms.

- **Case 2:**Basal ganglia lesions shown using video(downloaded from YouTube) where

- a) Parkinsonism patient with all clinical signs and symptoms was discussed.

- b) Hemiballismus and Chorea patient with clinical features demonstrated.

- **Case 3:** Patients having various types of Aphasia demonstrated using video(YouTube).

Case history, findings, investigations presented and discussed. Underlying pathophysiology discussed. ECE sessions were done in three lectures both of one-hour duration each. The students were encouraged to ask questions and clarify any doubts.

A Feedback questionnaire (including both open and closed ended questions), after getting validated by the faculty were filled by the students. Students were also encouraged to give their written open comments anonymously.

The questionnaire was meant to assess the impact of the program on the students.

Feedback: Post session feedback from the students was taken by Questionnaire graded on Likert's scale.

### Student Feedback Questionnaire

Dear Participants,

#### What is ECE?

ECE is early clinical exposure. ECE means preparing first year MBBS students to meet and learn from patients.

The purpose of this activity is to get feedback on the session of Early Clinical Exposure (ECE). This will help me to evaluate the session and make further improvement. You are requested to give your honest opinion regarding the ECE session and its importance to you. The feedback questionnaire consists of students' perception and feedback on ECE sessions. **You are not required to write Name or Roll Number.**

Sr. No	Questions	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
1	ECE is more interesting method of teaching-learning compared to traditional lecture					
2	ECE has increased my attention in class					

Cont ...

3	ECE motivated me to read more about the topic					
4	ECE helped me to understand the topic better					
5	ECE has helped me in better retention of the topic					
6	ECE helped me in correlating physiology with clinical case					
7	ECE made me understand the importance of learning Physiology					
8	ECE should be incorporated as a teaching -Learning Method along with regular lectures for other topics in physiology for undergraduates					
9	ECE should be incorporated as a teaching -Learning Method along with regular lecture in other Basic Science subjects for undergraduates					
Sr. No	Questions	Strongly Disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
10	ECE should be made a part of curriculum in basic sciences for further batches of MBBS students					
11	Enlist three good points about ECE as a method of teaching -learning					
12. Please give suggestions for improving ECE.						

Data analysis: All Likert’s scale responses were categorized into either positive(strongly agree, agree) and negative responses(neutral, disagree and strongly agree).

**Duration of study: 6 months**

**Observations and Results**

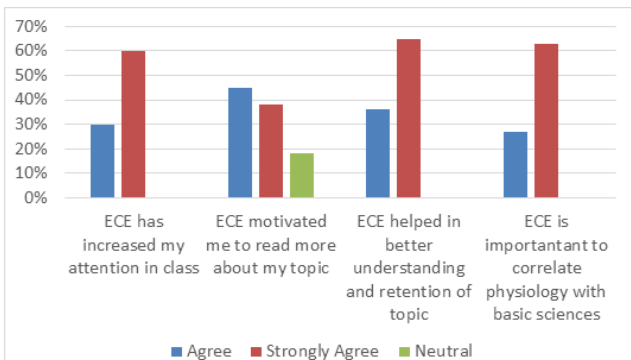
All the students commented that ECE helped them in their understanding of Nervous System Physiology. Most (63%) appreciated the synchronization of classroom knowledge with clinical exposures, and thought that integrated teaching helped in better understanding of practical applications of physiology (65%).One hundred two (68%) students believed ECE is more interesting method of teaching compared to traditional classroom teaching. In comparison to the other systems where only didactic lectures were involved, 65% of the students felt that ECE in Nervous System Physiology helped them to understand the concepts better.

**Observations and Results**

**Percentage of students who found ECE more interesting method of teaching-learning compared to traditional...**



**Fig:1: % students who found ECE more interesting method of teaching-learning compared to traditional lectures (Feedback Questionnaire 1)**



**Fig.2: Feedback Questionnaire (2-7)**

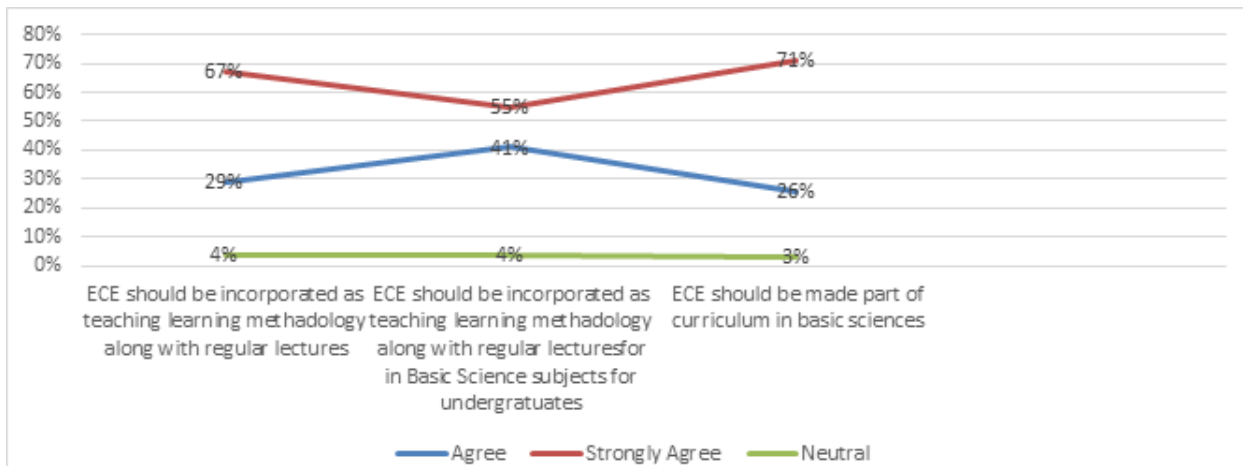


Fig 3: Feedback Questionnaire (8,9,10)

### Typical student comments (Feedback Questionnaire (11))

#### Students' comments about ECE in Nervous system physiology

Understanding of Physiology	"Helped us develop a better understanding of the subject of physiology"
	Helps in correlating clinical with physiology
	Develops more interest.
	Makes the topic more interesting.
	Helps in retention of topic.
	More visual understanding.
	Keeps us motivated to work hard.

#### Typical student's suggestions for improving ECE (Feedback Questionnaire (12))

1. ECE should be incorporated in every theory lecture.
2. ECE should be used in practical classes too for sensitization.
3. ECE should be made part of curriculum of M.B.B.S.

### Discussion

This study aimed to determine the outcomes of the project entitled "**Introduction of the Early clinical exposure(ECE) in 1<sup>st</sup> year M.B.B.S students in the department of Physiology.**" The model of traditional medical teaching includes more theoretical aspects in the first year of the course followed by exposure to clinics only in the remaining years. Regulatory bodies of the medical education have spelled out clearly

that the medical education needs to be geared to train professionals capable of providing holistic care to patients with compassion<sup>[1]</sup> Early clinical exposure, if implemented effectively could very well initiate the changes in the medical education system in the right direction.

Most students appreciated the ECE experience as 'inspiring', 'motivating', 'interesting' and 'good way of learning'. They felt it helped them see the relevance of basic science in clinical practice and evoked self interest. These findings are in accordance with the study conducted by Chari S et al., in which the students were positive about ECE and were full of enthusiasm<sup>[17]</sup>. Increased motivation of the students with ECE was also seen in the study conducted by Baheti S N et al.,<sup>[18.1]</sup>

Tayade et al<sup>[19]</sup> Chari S, Gupta M, Gade S reported statistically significant difference in the knowledge, skills and attitude of first year M.B.B.S students between ECE and Non-ECE group. Systematic reviews by Dornan

T et al., and Littlewood S et al., concluded that early experience not only helped medical students learn, develop proper attitude towards their studies but also made their learning more relevant and influenced career options <sup>[20,21]</sup>. Tayade M C et al in their study noted that faculties believed that ECE consumes more manpower, infrastructure, time and requires extra efforts on their part <sup>[19]</sup>. The apparent benefits of ECE include exposure to the health care system, instilling the qualities of a patient centered humanistic physician and increasing motivation for classroom learning <sup>[22]</sup>. ECE forms a crucial part in the initiation of students into medicine <sup>[23]</sup>. During a time when students often spend long hours in the classroom, it serves to remind students why they want to be physicians <sup>[22]</sup>. Most students benefit from active learning strategies over the traditional lecture format <sup>[22]</sup>.

#### **Outcomes:** What does the study adds

Majority of the students felt that Early clinical exposure has proved for integration of basic with clinical discipline. The perception gathered from students reinforced the affirmative nature of ECE, which provided holistic learning to them.

#### **Limitations:**

The limitation of the study was about the time constraints in first year MBBS physiology.

### **Conclusions**

From present study we found early clinical exposure was better learning methodology than traditional teaching for medical students. ECE can serve as a platform for providing the preclinical year students a cosmic variety of experiences involving all the three domains of learning. It can also be adapted as the teaching strategy to introduce the various dimensions of medical profession like scientific, ethical, interpersonal, professional and social. This program if implemented effectively has the potential to be the ideal first step in the making of a holistic doctor. <sup>[23]</sup>

#### **Implications**

Introduction of ECE is very important for students. MCI has taken a step further by already implementing in the new curriculum CBME 2019<sup>[1]</sup>. This study proved the importance of ECE as suggested by MCI. The students felt motivated to study as they felt the feeling of being “doctor” for the first time.

#### **No Conflict of Interest.**

**Ethical Clearance:** Taken from the PIMS Institutional ethics committee(IEC).

#### **Source of Funding- Self**

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