

EARLY CLINICAL EXPOSURE TO BLOOD BANK: THE VISIT COULD BOOST UP AWARENESS OF BLOOD TRANSFUSION IN MEDICAL STUDENTS

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Abstracts: Early clinical exposure (ECE) has become an important part of the competency based curriculum for medical education which has been rolled out. The visit to the blood bank is part of the physiology competencies. The paper is an attempt to highlight the importance of the topic, the need for this visit, what all preparations are required prior to the visit and what is the expected outcome of the visit. The article is expected to be useful for all stakeholders involved, the students, residents, faculty to help them plan the exercise in all medical colleges. The lesson plan and questions to be answered would help them decide on the teaching- learning and assessment methods that need to be adopted. It will also provide all with a broader vision, on the expected gains from the visit and how the visit is a potential source of awareness booster to the field of transfusion medicine.

Keywords: Early clinical exposure, competency, blood bank, transfusion medicine

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INTRODUCTION:

The undergraduate curriculum in medical colleges has changed and gives an opportunity to the first semester students for early clinical exposure. The visit to the blood bank is mandatory for the competencies on blood physiology and is to be scheduled every year and in all medical colleges. It seems so easy at first, all you have to do is to get the students to go to the blood bank, however the execution requires in depth planning and management. The practice is undoubtedly going to increase the interest and knowledge of medical students in the arena of transfusion medicine and is likely to be a win-win situation for all involved. The article is an attempt to understand the impact this exercise will have and help those who feel the need to learn more about it and improve their experience.

What is known of early clinical exposure?

Early clinical experience or exposure is an authentic human contact, in a social or clinical context that helps medical students in first year of medical school to learn more and relate their basic science knowledge to clinical profile of patients¹. Therefore the visit to OPD or hospital is essential but for feasibility issues, simulated patients, case based studies, virtual patients, clinical based investigations and problem based learning are also considered^{2,3}. There have been publications on ECE much before

the MCI made it mandatory for the first year medical students. It has been stated that it helps the students get a better understanding of the topics as they get a first-hand experience of the same⁴ and it is known to improve their cognitive skills⁵. The perception of both the students and the faculty involved towards ECE has been favourable^{6,7}. Enthusiasts have identified topics that could be introduced as early clinical exposure and in one study they have also tried to combine the concept of early clinical exposure and vertical integration⁸. To ensure a successful ECE, the specific learning objectives, case preparation for classroom settings, infrastructure, observational guides stating who and what to observe and report, time and effort for co-ordination in clinical and community settings is required^{4,9,10}. In a review, however the problems encountered have also been discussed, namely the role of the student as an active and passive observer, and that it may not be suitable for academically weak students, along with challenges to co-ordinate the student visit with patients and clinical departments¹¹.

OBJECTIVES for Early clinical exposure

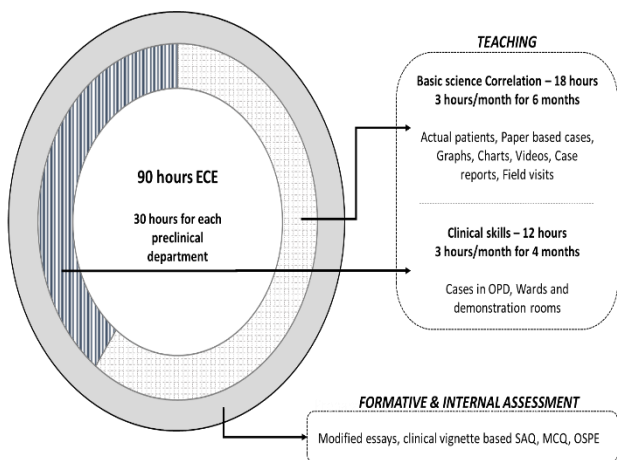
- Provides a context that will enhance basic science learning.

- Recognize attitude, ethics and professionalism as integral to the doctor patient relationship.
- Understand the socio- cultural context of the disease through the study of humanities.

Guidelines for ECE

The module of MCI covers guidelines for universities and faculty. It describes the modalities of ECE in order to facilitate the development and implementation of the module in medical colleges. The objectives include patient care and treatment, relate to the experience of patients, attitude, ethics and professionalism. The document also gives the time distribution and layout plan for ECE types throughout the year. It also gives examples of the ECE in preclinical subjects, the formative and internal assessment, and university examination and describes the roles of the dean of the institute, the curriculum committee, heads of departments, MEU in the curriculum governance of ECE¹². Figure 1 shows diagrammatic representation of the suggestions for time distribution.

Figure1: The layout plan of early clinical exposure (ECE) in the first year of competency based medical curriculum



Why early clinical exposure to blood bank is important and needed?

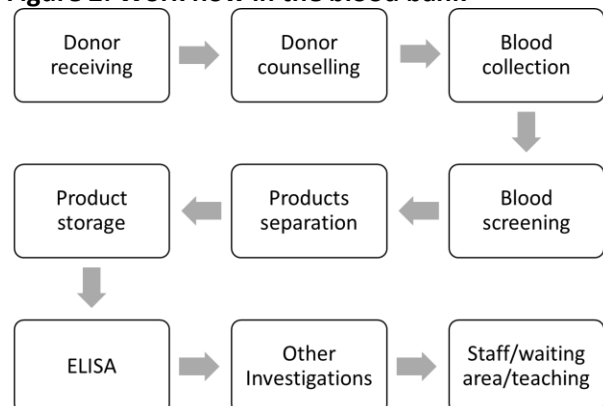
Many of medical students do not get to see the blood bank prior to their internship period and most of the learning about this is based on theory lessons in class and some discussions in lab. It has been shown in a study on health professional

students that they have limited knowledge of blood bank and practices of blood donation^{13, 14}. This is also observed in residents who prescribe transfusion therapy^{14,15}. A student’s life is mostly task oriented, and with so much to do, only a few make the effort tried to look up the internet or ‘You tube’ for it. The subject of transfusion medicine includes but is no longer limited to the blood bank; it involves the knowledge related to cultured blood cells¹⁶. There is a lot to be learnt from the blood bank visit. It could serve as a method of vertical integration, as well.

Lessons and learning points from blood bank visit

This exercise is therefore very useful and gives a fresh undergraduate student, a realistic view of what he is taught in classrooms. It gives them a feeling of being a doctor in the first year itself, increases their interest in subject and will perhaps help them retain more of what is taught in future¹⁷. This activity therefore, can increase awareness of the advantages of voluntary blood donation and encourages students to do so¹³. It has been previously reported that ECE not only increases knowledge of preclinical students about the clinical departments, but increased their psychomotor and affective skills as well¹⁸. Who knows, one day a few may chose transfusion medicine as a post graduate speciality. Even if this doesn’t happen; it will be definitely increasing their knowledge on the subject and what goes on in a blood bank, as shown in Figure2. Awareness programs and ECE could also make the students understand what goes on in the mind of a donor and this could help them to motivate more non-donors to become donors at the community level¹⁹.

Figure 2: Work flow in the blood bank



The planning for clinical exposure of blood bank

A blood bank deals with various components of blood, their donation, storage, reconstitution and use²⁰.The visit should be undertaken once the students have knowledge of blood and blood products. As the components in blood bank include WBC and platelets, it's advisable to schedule it later once most of haematology teaching in first semester is over. Also many undergraduate practicals, like RBC count, WBC count, platelet count and haemoglobin estimation are a prerequisite for better student understanding. Similarly the students must be well versed with the concepts of ESR, PCV, and plasmapheresis. It is also mandatory that the blood groups and transfusion topics are covered prior to the visit.

The planning involves various aspects, the pre-requisites as shown in table 1, and lesson planning including what all has to be taught (table2), what is the questions that should be answered(table3) and what is the management strategy as (table4).The T-L methodsinclude methods like lectures in large groups, discussions and reflections as small group activity. The AV aids include video of a blood bank, video of procedure in blood bank and pictures of blood products.

Table1: Pre-requisites for the blood bank visit

Work	Details
Lesson plan	<ul style="list-style-type: none"> • Preparation of presentation to be shown prior to visit. • Preparation of charts to be put in class and in blood bank.
Staff preparation	<ul style="list-style-type: none"> • Discussions with the blood bank officer and team. • Deciding what all will be shown to the students. • Deciding questions for students to generate their interest. • Preparation of the team to answer queries of students.

	<ul style="list-style-type: none"> • Timing the stay of a group in each room. • Communication between the residents to ensure that no time is wasted and yet there is no crowding in the blood bank.
Curricular governance	<ul style="list-style-type: none"> • Application for permission of visit (An early step). • Students to be informed of the visit, much in advance so that they do not miss it. • Official record that the visit took place (after the visit) duly signed. • Attendance of students to be taken before going to hospital and upon return. • Residents to accompany the students, in batches.
Prior visit to blood bank	<ul style="list-style-type: none"> • Prior visit of faculty and residents to the blood bank. • Charts to be put in the blood bank for students information

Table2: Topics taught before blood bank visit

Topics of Physiology	Topics related to the blood bank
<ul style="list-style-type: none"> • Introduction to the module • Blood Components • Blood groups and blood transfusion • Goals of Blood Collection • Collection of Blood Products • Blood Products 	<ul style="list-style-type: none"> • Workflow in a blood bank • Type of donors • Concept of voluntary donation • Suitable and unsuitable donors • Counselling, pre and post donation • Donor education,

<p>Available</p> <ul style="list-style-type: none"> • Processing of blood in a blood bank • Stored blood • Changes in stored blood • Blood substitutes • Pretransfusion testing • Transfusion • Mismatched transfusion 	<p>retention and motivation</p> <ul style="list-style-type: none"> • Safe blood donation • Confidentiality issues. • Maintenance of records and follow-up of donors
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Other than the topics mentioned above, various questions can be expected from students. The faculty, residents and technical staff need to be prepared with details so that they are all up to date and can answer the queries. This is a one time visit and so prior preparation is mandatory

Table 3: Probable questions to be answered before/during blood bank visit

<ul style="list-style-type: none"> • What is a blood bank? • Why are we going to a blood bank? • What happens in a blood bank? • What is kept in a blood bank and at what temperature? • General work flow(Figure2) • How is temperature maintained and what is the refrigeration system? • What are the procedures adopted for receiving, processing and distributing any product by the blood bank? • What is the prerequisite for screening of blood? • What are the instruments kept in blood bank? • What is available in other blood banks and not ours? • What is the procedure for blood donation?

<ul style="list-style-type: none"> • What is told to the donor before and after blood donation? • What is required for blood donation? • What is the contact person, phone number, address, governance? • How to approach the blood banks for help? • What forms are to be filled? • What is the national health policy or donation policy? • How do they dispose of unused or those products that have exceeded their expiry?

All discussions should be done before and after the visit. Assessment of activity can be done by short answer questions, for the theoretical component and AETCOM. MCQ and OSPE can also be used for AETCOM.

Table4: Management plan of blood bank visit

<p>Plan execution</p>	<ul style="list-style-type: none"> • Total number of students • Total time of ECE • How many groups to be made? • What is the time available per group? • How much time does it take to reach blood bank? • How many rooms will each group visit? • How much time must be spent by each group in each room? • How many residents will be available to manage the entire class? • Which resident will accompany the group? • A resident to be at blood bank at all times for attendance. • A resident to be available in class room in medical college for
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	<p>reflections and attendance.</p> <ul style="list-style-type: none"> • Communication between residents to ensure that there is no wastage of time at either place and not many students are stranded in the waiting area. • Students must not get lost in the hospital. • All reflections are handed over before ECE finishes.
Reflections	<ul style="list-style-type: none"> • What did I learn? • How will it help me? • What more do I need to know and learn?
Feedback to be taken from	<ul style="list-style-type: none"> • Students • Residents • Technical staff in blood bank

Inputs for further improvements

It would be a good idea to simultaneously show them a patient or a video of a patient getting blood transfusion. Better still, if they could see a patient improving after a blood transfusion. It is also necessary to make a video or an online module of the visit, which would help in a situation where onsite visit is not possible, as in the current pandemic outbreak or for students who somehow miss the opportunity. The logistics of this have to be worked out. Evaluation of the ECE may be short term with reflections and survey and long term evaluation with OSPE and OSCE for clinical skills and comparing results of students exposed to ECE and those not exposed to it¹¹.

CONCLUSION

Early clinical exposure of the blood bank visit is a good initiative, a realistic training to young first semester medical students and it is something they would always remember as doctors as an enriching experience. Time management in addition to lesson planning is the key to a successful early clinical exposure of a blood bank visit.

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Conflict of Interest : None