COMMENTARY

Early Clinical Experience Module: Single Medical School Experience During the Pandemic

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ABSTRACT

The Early Clinical Experience (ECE) module is a module that was introduced to expose preclinical medical students to the clinical skills required for their clinical practice. COVID-19 has forced traditional face-to-face teaching into online mode. In Universiti Putra Malaysia (UPM), the teaching underwent several improvisations to cope with the online mode but still within the framework of four basic components of clinical skills namely history taking, physical examination, basic procedural skills, and communication skills. The advantages and limitations of the usage of online lectures and demonstrations, video recordings, Google Classroom (GC) platform, and written feedback were discussed. In conclusion, the online mode of ECE delivery has its advantages and limitations, and educators need to address these concerns to ensure the future success of the module. .
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INTRODUCTION

The early formative years of undergraduate medical education are critical for the later academic success of medical students. Such success depends not only on expanding the basic medical knowledge learned during these years but also on pre-conceived attitudes towards medicine and the role of the physician (1). In Universiti Putra Malaysia (UPM), this is achieved through the introduction of the Early Clinical Experience (ECE) module, where students are exposed to the basis of communication skills, history taking, basic physical examination, and basic medical procedures.

ECE is a teaching-learning methodology that fosters the exposure of medical students to the patients as early as the first year of medical education. Early exposure to clinical skills has proven to be beneficial as it strengthened students' academic performance, improves their skills, improves communication skills, and increases their confidence level (2,3). In UPM, this course runs throughout the first two preclinical years and at the end of it, the students are expected to be able to perform these skills. The traditional ways of teaching these skills were done through hospital visits, visiting old-folks homes, small-group teachings, etc. These were achieved via synchronous face-to-face mode where the students will get hands-on experience through the exposure.

The emergence of the COVID-19 pandemic has led to an abrupt change in the mode of delivery in teaching and learning across the world. COVID-19 is a highly contagious viral infection caused by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV 2) and has ravaged the world since it was first discovered in Wuhan, China in December 2019 (4). This virus infection was declared a pandemic by the World Health Organization (WHO) in 11th March 2020 (5). With that announcement, a week later, the government of Malaysia thorugh National Security Council imposed a movement control order starting from March 2020. The cases of COVID-19 in Malaysia in that time was also on the rise due to a religious gathering in Kuala Lumpur that has spread thourohut the county (6). The sudden

closure of universities including medical schools forced the transformation of traditional preclinical teaching to online learning. Similarly, the teaching of ECE was also affected and has to be adjusted to adopt the new norm.

To avoid continuous delay in education, all ECE teaching and learning sessions in UPM were converted into online mode. This paper describe the modifications that has been made for ECE teaching and challenges faced. Arrangement and planning of each session were done to introduce and strengthen the theoretical component of each skill. Generally, the students will be first introduced to the skill by an online lecture on the particular topic, followed by a demonstration of each skill by a facilitator, and finally the students performing the particular skills on their own.

HISTORY TAKING

The session begins with an introduction to history taking and communication skills via an online lecture. Students were introduced to components in history taking and description of communication skills involved with examples shown by the lecturers. Then, instead of the usual face-to-face session, the history-taking practical lesson was done virtually in a small group. Students were given instructions to 1) construct and conduct a virtual role-play among themselves with a given scenario, 2) a virtual case interview with simulated patients (SP). Both sessions were recorded and shared with their respective group facilitators where they will be evaluated based on an OSCE checklist and provide feedback.

Facilitators were selected among medical lecturers in UPM with vast experience in clinical patient encounters. The SPs were chosen among those with experience of being an SP before this. Prior to the interview sessions, the SPs were briefed on the scenarios and the role they perform. Students were informed that they will interview a patient virtually using the tools and skills that they have acquired from the lectures and have the sessions recorded. The recording will be re-played during a session with the facilitators for debriefing and evaluation.

These sessions allowed the medical students to not only experience the role of a healthcare professional but also appreciate the perspective of a patient. Feedback was given by the facilitators in terms of completeness of each component in history taking and usage of communication skills. Facilitators were also given the freedom to share their own clinical experiences on the subjects.

PHYSICAL EXAMINATION

For the physical examination component, similar general arrangements were employed with an initial introduction to the theoretical aspect of basic examination of the body system through an online lecture followed by examination techniques demonstration via virtual video demonstration. Then, each student was instructed to record a video of them demonstrating physical examination techniques with running commentary and to submit the video to Google Classroom (GC) platform created for the module.

The videos were evaluated according to the OSCE checklist (Table I) given to facilitators. The checklist consists of all the basic steps of examination that students need to perform and the communication skills involved. Each facilitator will provide written feedback on the students' performance in the video submitted using a similar GC platform and the students have access to it to reflect on and improve their techniques.

Table I Example of Examiner's OSCE checklist for physical examination.

	Details of Task	Not per-formed	At-tempt-ed, non-sat-isfac-tory	Per-formed satisfac-torily
1	Preparation prior to examination	0		0.5
2	Sanitize hand before examination	0		0.5
3	Self-introduction and verbal consent	0	0.5	1
4	Positioning and exposure – lying supine on one pillow, arm at side – xiphisternum until symphysis pubis		0.5	1
6	Abdominal Inspection	0	1	2
	(At least 4)			
	1. contour			
	2. umbilicus			
	3. foreign objects			
	4. scars			
	5. striae			
	6. skin lesion			
	7. scratch mark			
	8. swelling			
	9. stoma stump			
	10. Hernia orifices			

CONTINUE

Table I Example of Examiner's OSCE checklist for physical examination.(cont.)

	Details of Task	Not per-formed	At-tempt-ed, non-sat-isfac-tory	Per-formed satisfac-torily
7	General Abdominal Palpation	0	0.5	1
	1. Light palpation: for tender-ness		0.5	1
	2. Deep palpation: mass/ swelling		0.5 1.0 1.5	2
	Steps (0.5 mark each)			
	1. Ask for any pain			
	2. Position at patient's right			
	3. Examine – sitting/ kneeling besides patient, hand and forearm at same level of abdomen			
	4. Palpate using 4 MCP joint(not fingertips)			
	5. Palpate all 9 quadrant			
	6. Observe face while pal-pating			
8	Specific Abdominal Palpation	0	0.5	1
	Objectives:			
	1. Elicit organomegaly			
	2. Assess mass found in gener-al palpation			
	3. Hernia assessment, if found during cough impulse		0.5	1
	Liver Palpation		0.5	1
	4. RIF to right costal margin			
	Liver Percussion			
	5. Lower border: RIF upward to costal margin/dullness		0.5	1
	6. Upper border: 2nd ICS downward to dullness			
	7. Measure Liver span (N 6-12cm, midclavicular line)			
	Spleen Palpation		0.5	1
	8. RIF to left costal margin			
	9. Ask patient to take a deep breath and palpate with fingers aligned with costal margin, move upward to-wards left costal margin.			
	Spleen Percussion		0.5	1
	10. RIF towards the left costal margin until dullness is heard.			

Table I Example of Examiner's OSCE checklist for physical examination.(cont.)

	Details of Task	Not per-formed	At-tempt-ed, non-sat-isfac-tory	Per-formed satisfac-torily
8	**Spleen Percussion**			
	11. RIF towards the left costal margin until dullness is heard.			
	12. Finally percuss the Traube spaces (9th, 10th, 11th Left Intercostal Spaces)		0.5	1
	13. Traube spaces are dull if spleen is enlarged			
	Bimanual kidney palpation			
	14. Right hand on patient's abdominal aspect and the left balloting hand placed over lumbar and push up.			
	15. If enlarged, it will hit the palm of your right hand and can be balloted back down and hitting palm of your left hand at the lumbar region			
9	Abdominal Percussion	0	0.5	1
	1. Elicit Ascites			
	2. Assess mass			
	3. Tenderness of all quadrant			
10	Abdominal Auscultation –	0	0.5	1
	1. Bowel sound - any part of abdomen			
	2. Bruit			
	Aortic bruit			
	Renal Bruit			
11	Digital Rectal Examination	0		1
12	Thank the patient	0		0.5
13	Sanitize/wash hands after exam-ination	0		0.5
	Total Marks			**19**

It was interesting to note that this arrangement allowed the students to express their very own creativity in making the videos. For instance, some students performed an abdominal examination on a very large teddy bear while others created a replica of the abdomen using everyday objects such as a pillow, cardboard, and drawings.

BASIC PROCEDURES
Blood pressure measurement, venepuncture, and urinary catheterisation are some of the procedures taught in the ECE module. The theory component for each procedure was taught via online lectures followed by a video demonstration of the steps of the procedure.

This includes indications and obtaining simple verbal consent. Following that, the students were tasked to record a video of them pretending to perform the procedure at home or on a mannikin in the Clinical Skills Laboratory (CSL) as if they are doing it on a real patient. The students will have to make a booking via the CSL's booking system for the procedure they wish to perform and come to record their video at the designated time to comply with the social distancing measure.

The submitted videos were assessed by facilitators similar to the physical examination video previously described. Written feedback was also provided on the GC platform.

Students' performance in the videos they submitted was interesting, to say the least. Most students possess an automated blood pressure measurement machine at home, so they were able to demonstrate the steps and techniques to their family members as if they were using a sphygmomanometer. Their creativity was exceptionally uncovered during the demonstration of venipuncture. Some of them made their own device (e.g., syringes, needles) using pencils, cardboard, or printed pictures of the devices and used them during the demonstration. They managed to perform the procedure similar to what doctors will do on a patient.

Advantages:
Online delivery of the ECE module enables the students to acquire a strong theoretical foundation in history taking, physical examination, and procedural skills. The teaching materials including lectures and video demonstrations were made available online allowing the students to repeatedly access the materials and visualized the examination techniques at the same time. This promotes self-directed learning and allows students to be more responsible for their own learning process (7,8).

The concept of enhancing basic knowledge, demonstration, and followed by execution is done according to Peyton's 4-step teaching approach on skill acquisition (9) with some modifications to accommodate online learning. The aforementioned teaching approach commenced with the educator demonstrating the skills, followed by deconstruction/discussion whereby the procedures will be performed again by the educator together with the description of each step. Subsequently, the teacher will execute the procedure again following the steps described by the students and finally, the students will perform the skills themselves. This approach is proven to be an effective and reliable method of teaching clinical skills (10,11). The modification that we did to accommodate asynchronous learning is that we did not have the teacher execute the procedure again following the steps described by the students. Rather, the learner themselves record a video of them performing the procedure according to the steps taught, and the educator will provide written feedback and comments on their performance.

Other than the module itself, the learners will also benefit from this practice. Students are exposed to skills such as video recording, video editing, and usage of online sources that will be an added value to them in the long run.

Challenges:
It is important to note that as much as we tried to enhance learning and simulate a clinical environment online, however, it must not be used as a stand-alone teaching exercise. Practical training with the real patient is undeniably still the best method of teaching and learning clinical skills and is irreplaceable by online learning. The emotional expression of empathy, the kinesthetic sensation of performing procedures on real-life patients, and other challenges such as difficult and uncooperative patients are not able to be emulated online. This is similar to a study done by 800 Polish medical students on impact e-learning (12).

Certain components of communication skills such as eye contact, facial expression, body language, and posture are unable to be assessed virtually with the limitation of camera angle and video quality. Students also need to have devices with certain capabilities especially a camera and microphone to record the video. A good quality device doesn't come cheap and not all students can afford it.

Time limitation is another challenge that we faced. The learning materials when converting to online teaching must be prepared in a short period. The student also met a similar challenge as several other learning modules are working concurrently, and each has assignments that need to be completed.

Recommendations and Conclusion
COVID-19 outbreak can be considered a blessing in disguise. The hybrid method of teaching and learning is currently considered an alternative to traditional clinical skills teaching and the pandemic has hastened the shift. Proper planning is needed to ensure students gain maximum benefit from it. Further study on the effectiveness of this shift is needed to confirm that this practice can continue beyond the pandemic era. A proper rubric for assessment needs to be developed to include the skills that can be assessed via the online ECE module especially involving the communication skills components that are difficult to measure by using the current format. The SPs will also need to be trained in the online interview to cope with the current needs.

Looking forward, this practice is also a very good opportunity to grow teleconsultations in the medical field and involve more video recordings in the patient encounter. Besides that, this is the perfect time to train

and enhance the information technology (I.T.) skills of the lecturers, medical practitioners, and future patients alike, because who knows what and when the next pandemic might occur.

In summary, the pandemic has forced medical educators to convert their teachings into online mode, and the ECE module is not spared from this. The online ECE module has a great benefit and provided an opportunity for further development but its limitations need to be addressed to perfect the module and implement it beyond the pandemic.

REFERENCES

1. Littlewood S, Ypinazar V, Margolis SA, Scherpbier A, Spencer J, Dornan T. Early practical experience and the social responsiveness of clinical education: Systematic review. Vol. 331, British Medical Journal. 2005.
2. Ogur B, Hirsh D, Krupat E, Bor D. The Harvard Medical School-Cambridge Integrated Clerkship: An innovative model of clinical education. Vol. 82, Academic Medicine. 2007.
3. Tayade MC, Latti RG. Perception of medical faculties towards early clinical exposure and MCI vision 2015 documents in western maharashtra. Journal of Clinical and Diagnostic Research. 2015;9(12).
4. Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. The lancet. 2020;395(10223):497–506.
5. Cucinotta D, Vanelli M. WHO declares COVID-19 a pandemic. Acta Bio Medica: Atenei Parmensis. 2020;91(1):157.
6. Aziz NA, Othman J, Lugova H, Suleiman A. Malaysia's approach in handling COVID-19 onslaught: Report on the Movement Control Order (MCO) and targeted screening to reduce community infection rate and impact on public health and economy. J Infect Public Health. 2020;13(12):1823–9.
7. Patel ST, Shah S, Sood RP, Siddiqui Z, McKay-Davies I. The Implementation of Virtual Clinical Skills Teaching in Improving Procedural Confidence in ENT Trainees. Adv Med Educ Pract [Internet]. 2021 Aug 27;12:965–9. Available from: https://pubmed.ncbi.nlm.nih.gov/34475794
8. Jang HW, Kim KJ. Use of online clinical videos for clinical skills training for medical students: benefits and challenges. BMC Medical Education [Internet]. 2014;14(1):56. Available from: https://doi.org/10.1186/1472-6920-14-56
9. Giacomino K, Caliesch R, Sattelmayer KM. The effectiveness of the Peyton's 4-step teaching approach on skill acquisition of procedures in health professions education: A systematic review and metaanalysis with integrated meta-regression. PeerJ. 2020;8.
10. Ahmed FR, Morsi SR, Mostafa HM. Effect of Peyton's Four Step Approach on skill acquisition, self-confidence and self-satisfaction among critical care nursing students. IOSR-JNHS. 2018;6:38–47.
11. Krautter M, Weyrich P, Schultz JH, Buss SJ, Maatouk I, Jьnger J, et al. Effects of Peyton's Four-Step Approach on Objective Performance Measures in Technical Skills Training: A Controlled Trial. Teaching and Learning in Medicine [Internet]. 2011 Jul 1;23(3):244–50. Available from: https://doi.org/10.1080/10401334.2011.586917
12. Baczek M, Zaganczyk-Baczek M, Szpringer M, Jaroszynski A, Wozakowska-Kaplon B. Students' perception of online learning during the COVID-19 pandemic: A survey study of Polish medical students. Medicine [Internet]. 2021;100(7). Available from: https://journals.lww.com/md-journal/Fulltext/2021/02190/Students__perception_of_online_learning_during_the.87.aspx