

# Feasibility of maintaining a portfolio for a professorial appointment in obstetrics and gynaecology in a low resource setting

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## Abstract

**Objective:** The main objective of this study is to assess the feasibility in replacing the portfolio in a low resource setting and its acceptance amongst the students and staff.

**Synopsis:** The objective for the study with regards to using portfolios: is it feasible for the 2 month professorial appointment in a low resource setting and its acceptance amongst the students and staff.

**Methods:** The study was conducted on 259 final year medical students for a period of two years from 2016 to 2018, using the student portfolio maintained by them during their professorial gynaecology and obstetrics appointment which is of 8 weeks duration, and the feedbacks provided by students and staff.

**Results:** Around 2 mini clinical evaluation exercise (CEX) were completed for gynaecology and obstetrics and 1 OSAT each was completed of the five different technical skills by all students. All of them completed the objective structured assessment of technical skills (OSATS) in episiotomy suturing, urine catheterization and cannulation, 96% of the students were assessed on their skills for artificial rupture of membrane (ARM) and in setting up as an intravenous drip. Students managed to obtain feedback from patients, peers and nursing officers. 100% positive feedback was given by the patients, 97% from peers and 92% from the nursing officers. 80% of all the logs in the portfolio were completed by the students. On an average 2 reflective writings were completed per student. 97% of the students found it as a useful tool and 97% stated that it can be easily completed.

**Conclusion:** Introduction of a portfolio for the obstetrics and gynaecology professorial appointment for medical students is possible, with good student satisfaction despite higher number of student: staff ratios.

**Key words:** portfolio, medical students and low resource setting

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### Introduction

A portfolio can be defined as a “collection of evidence to prove that learning has taken place”<sup>1</sup>. It is a method of encouraging adult and reflective learning for professionals. Portfolio deals with the recording of all learning, reflection, and future learning in one place<sup>1</sup>. Learning is recorded in the form of documentation of learning and showcasing what has been learned by a recording of events or experiences, procedures carried out, variety of cases observed, and presentations during the clinical period<sup>1,2</sup>. From the student’s aspects, the portfolio enables them to reflect, learn from their experience, and enable deeper and more sustainable learning, helping them to relate theory to practice, and to gain more understanding in individualized care<sup>3</sup>.

Medical student portfolios are used in several different ways to help the institute and the students assess and track the progress of students. It has been found that portfolios help students in fostering skills in self-assessment and ongoing professional development. There are two main key uses for educational portfolios, which are to develop reflective skills in learners (reflective portfolio) and to facilitate students’ learning and assess the student’s progress (comprehensive portfolio). Therefore helps the faculty to assess whether the students can achieve the expected level of competency<sup>1</sup>. Evidence of learning can be given through reflective writing where a certain significant medical event is documented and personal reflection showcased in the form of a written article by a student with links to the performance and practical application of theory<sup>1</sup>. From 1970 onwards there has been a demand in medical education for testing professionalism, attitudes, self-assessment, and reflection<sup>3</sup>. Hence the portfolio can be used as a tool for assessing a variety of learning activities that are different in the content, usage, and assessment<sup>4</sup>.

Technical proficiency is a critical factor in assessing the competency and quality of work among medical students during their training period and therefore these skills must be critically assessed by a responsible trainer. This is achieved by being able to correct the deficiency in training and performance by providing objective feedback to students<sup>5</sup>. It has been observed that there are a small number of procedures that are considered to be fundamental to the practice as a house officer in the obstetrics and gynaecology ward and they require an objective assessment tool to aid the review process. OSATS is a validated assessment tool

that can be used to serve this purpose<sup>6</sup>. Mini clinical evaluation exercise (mini-CEX) is another form of assessment tool used in assessing the clinical skills, attitudes, and behaviors of medical students in real-life clinical settings. It is one of the tools used to collect evidence of learning in a portfolio<sup>7</sup>. The main aim of using mini-CEX is to guide the students learning and improves clinical performance by providing structured and immediate feedback in regards to the exercise carried out by their assessor immediately<sup>8,9</sup>. These can help to identify ways for students to improve their practices in respective areas such as communication, history taking, physical examination, and professional practice<sup>3</sup>.

It is also important that the medical students develop professionalism, interpersonal and communication skills which help physicians gain trust and work as a team with the other health care professionals. It has been identified by the Accreditation Council for Graduate Medical Education (ACGME) as one of the 6 core competencies that should be developed by medical professionals. The ACGME has suggested using multisource feedback and a 360-degree evaluation system as one method to assess the professionalism and interpersonal and communication skills of the medical students by using multiple evaluators.

Over the years, there has been an increase in the use of portfolios in undergraduate medical education due to the increase in requirement of competency-based medical education<sup>1</sup>. It has proven to be an excellent tool to authentically assess the application of theory in practice<sup>2</sup>. However, despite the advantages, there have been reasonable doubts on whether portfolio assessment techniques provide consistent, meaningful, and reliable estimates of what the student knows and can do<sup>9</sup>. The use of portfolios have been observed to have an influence on the activity of the teachers in taking up more problem-solving strategies and small-group work in class and it was also observed to benefit the school management in helping them make decisions regarding initiating changes in the content and instructional strategies on the curriculum<sup>4</sup>. This has been proven to be a challenge due to the low resources available in the current setup and with the high number of students involved especially considering giving need of assessing and supporting individual students on one basis to complete the tasks.

The main objective for the study is to assess the feasibility of introducing and maintaining a portfolio

for the 2-month professorial appointment in obstetrics and gynaecology, in a low resource setting and its acceptance amongst the students.

## Method

The study was conducted among the medical students attached to the Professorial Obstetrics and Gynaecology Unit of the Faculty of Medical Sciences, University of Sri Jayawardenepura using 259 portfolios which were maintained during the professorial gynaecology and obstetrics clinical attachment lasts for 8 weeks. The students were given basic instructions on how to maintain the paper-based portfolio at the beginning of the appointment. At the end of the clinical attachment, the students have assessed on portfolio viva, and the individual portfolio was assessed for its completeness at the end of the appointment. We are presenting the results of the pilot project conducted among two batches of medical students from 2016 to 2018, prior to its incorporation into the curriculum.

The portfolio was made up of 10 components. These components include personal details and professional development plan, meetings and feedback, workplace-based assessment, reflective reports, sign-off documents, interesting cases, logs of a list of teaching (tutorials) / learning / courses attended/ tutorials, audits, presentations are undertaken, and certificates. The workplace-based assessment component consists of 4 mini CEX, 6 OSATS, peer, ward staff, and patient feedback forms: 2 for each feedback. The reflective writing component requires a minimum of two writings to be completed by the students.

The Statistical Package for Social Sciences (SPSS-23)

was used to analyze the data. Normally distributed data are presented as means  $\pm$  of the standard deviation and categorical data are presented as raw data and as frequencies. The level for all analyses was set as  $P < 0.05$  and a 95% Confidence Interval.

The Professorial Obstetrics and Gynaecology Unit is made up of three wards with a bed capacity of 38 beds per ward, having a rate of 280-380 obstetrics and 250-350 gynaecology admissions per month. In terms of academic staff members, the department has 1 professor and 4 senior lecturers attached to the ward having 150 students per batch with 40 students attached to the ward at a time. The department has a resource capacity of 1:8 teachers to student ratio. Teaching activities conducted during this period include daily ward classes, clinic-based teaching, and problem-based learning sessions, student presentations and, hands on skill sessions.

## Results

Medical students as their workplace-based assessment on average had to complete two mini CEX each for gynaecology and obstetrics and 6 OSATS. However, it was noted that the average numbers were slightly different compared to expected. Around 2 mini CEX were completed for gynaecology and obstetrics respectively. Approximately 1 OSAT each was completed in each different technical skills being assessed for the attachment which are considered important skills that a medical student should acquire before completing the attachment. Hence each medical student has at least attempted and being assessed on their technical skills for the five procedures at least once. A detailed overview of the mini CEX completed is shown in table 1.

**Table 1. Number of mini-CEX and OSATS**

Assessment tools	Number completed	Average number completed
Mini-CEX - Gynaecology	477	1.588
Mini-CEX - Obstetrics	502	1.843
OSATS - ARM	258	0.99
OSATS - Episiotomy suturing	259	1
OSATS - Urinary catheterization	259	1
OSATS - Pap Smear	197	0.392
OSATS - Intravenous drip	249	0.961
OSATS - Cannulation	259	1

In reference to Figure 1, 41% of the mini-CEX were assessed by a Registrar at the ward, 33% were with the consultants, and 22% with the senior registrars. 1% of mini-CEX were done with the intern house officer, however, none were presented to the senior house officers.

All 259 students completed OSATS for episiotomy suturing, urine catheterization, and cannulation, 99.51% and 96.08% of students were assessed on their skills for ARM and intravenous drip. However,

only 57.61% of students were assessed for their technical skills in collecting the pap smear samples (Table 2).

All students obtained feedbacks from the patients in terms of the care given by them, followed by a 97% of them obtained feedback from the peers. 92% of the students managed to obtain feedbacks from nursing officers. A feedback form is a structured form with three components (Figure 2).

**Mini-CEX Presentation by Students**

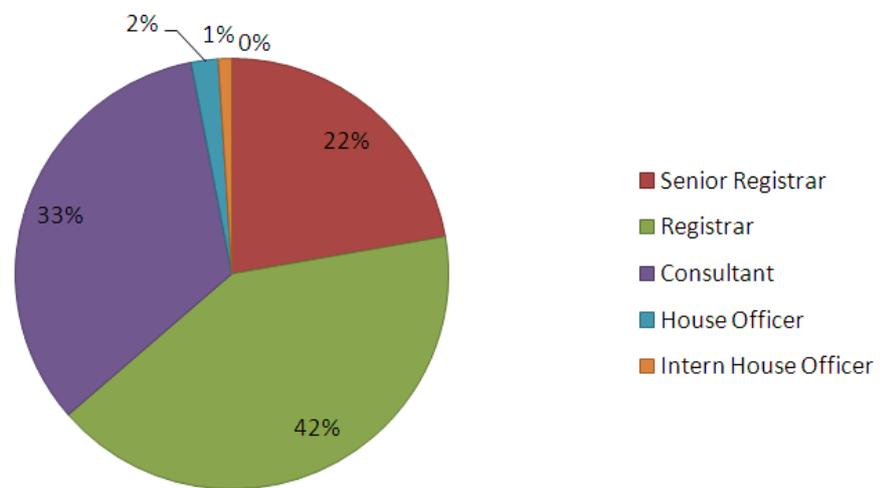


Figure 1. A comparison of the number of mini-CEX presented by the student to doctors in respective designations.

**Table 2. Mini-CEX presentations made by the students**

Presented to whom	Number of mini-CEX presented	Percentage of mini-CEX presented (%)
Senior Registrar	149	22
Registrar	274	41
Consultant	221	33
Senior House Officer	0	0
Resident House Officer	12	2
Intern House Officer	9	1

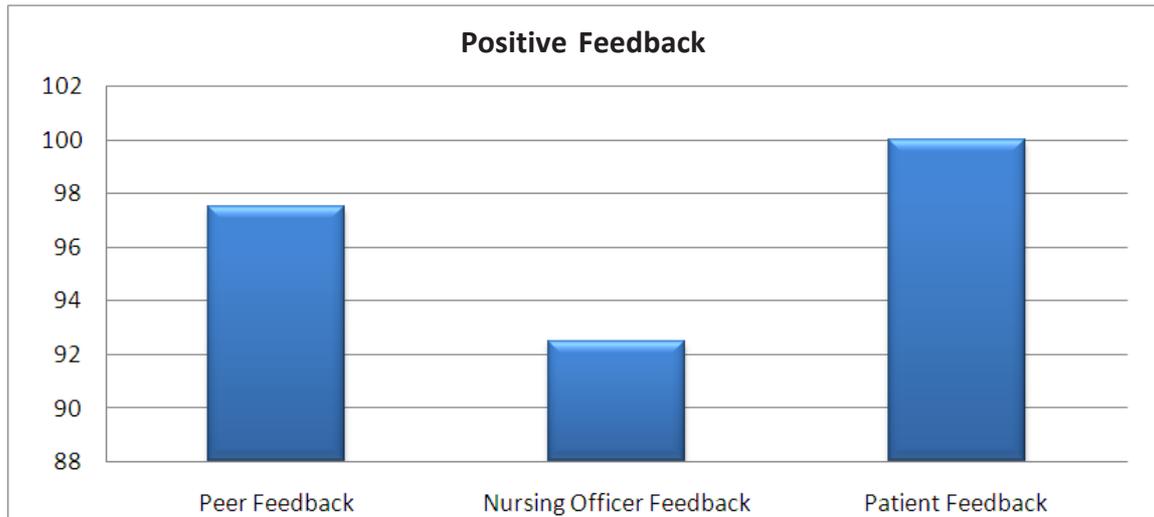


Figure 21. Percentage of positive feedback received multiple sources.

When analyzing the number of logs completed by all the students 79.9% of learning topics were completed during the 2 months period. On average 2 reflective writings were completed per student. From the feedback given in regards to the usefulness and the possibility of completing the components of the portfolio, 97% found it useful and thought that the current portfolio could be easily maintained without extra stress. 82% of the students would consider recommending the use of the portfolio to their junior batches and the continuing use of the portfolio for future learning purposes. 98% responded that the individual feedback received was extremely useful for the improvement of their skills. It was suggested to include more case presentations. It was also suggested to reduce the number of reflective writing to 1 each for a gynaecology and obstetrics case due to the limited time available for the medical students when trying to complete the task.

## Discussion

During the two months' appointment students were expected to do 2 mini-CEX for gynaecology and 2 mini-CEX for obstetrics, in history taking and examination, which was used as a formative assessment of the students. All students managed to complete the task and hence all received structured feedbacks for the above essential skill, which was not there with the logbook. Each student received individual feedbacks from different examiners/trainers and at least once by a senior lecturer or a professor. In addition, the

performance of the student and the feedback was observed by 5 to 10 other students in the local setting which was not assessed in the study. Hence the students were exposed to a variety of cases by different trainers allowing the others to observe the tasks allowed the students to get exposed to different observations making it an effective, reliable tool even in a limited-resource setting.

From previous studies conducted, OSATS have been found to be a reliable and valid instrument to assess the surgical skills of medical students<sup>6</sup>. It is a tool that has been developed for the evaluation of surgical technical skills including suturing<sup>10</sup>. The studies conducted in the past using OSAT had proven the tool to be valid, internally consistent, and having high inter-rater reliability. It has been found to be a good formative feedback tool as well<sup>11</sup>. This tool was used to assess the medical student's technical skills in episiotomy suturing; urine catheterization, and cannulation, intravenous drip, and ARM. These skills are the skills an undergraduate should be competent in at the end of the undergraduate training period, to function as a House Officer in Obstetrics and Gynaecology. Hence it is important for these skills to be assessed during their training period. In our setting, on an average 1 case per the different technical skill was assessed with the exception of Pap smear, where only 57.61% completed the assessment process. This may be due to the lack of a number of patients they were exposed to.

Peer-feedback and peer-assessment have been considered a method used by medical professionals in evaluating their own strengths, weaknesses, and learning needs, to help them develop and maintain professional competencies<sup>12</sup>. It has been proven to be an effective tool in medical communication skills training by embracing a reflective practice mechanism. Through peer feedback, students are able to develop their evaluative skills and be able to obtain a better understanding of the areas where they need to improve their performances<sup>10</sup>. Previous studies conducted have found that external feedback from peers is more effective in response to student self-evaluations. All students managed to get patient feedbacks and they were 100% positive feedbacks. This could be due to the students having mastered their interpersonal skills in terms of managing patients and building rapport. However 100% positive feedback could also be given due to bias feedback since there is a possibility that the feedback would not be taken from all the patients. Another possible reason could be due to the patients willingly giving positive feedback thinking that the feedback they give would affect the care given to them or might affect the students' career. 97% of the students received positive feedbacks from their peers which could be due to favoritism that would significantly impact the feedback given. 92% of the feedback given by the nurses was positive. Even though the entire portfolio was not completed by all the students, 97% of them found the portfolio useful and also found it easy to complete. Hence proving that the incorporation of the portfolio as a tool in the undergraduate education program is good from the student's perspective and it is also not a hassle they believed it is possible to maintain a portfolio despite limited recourse and with a high student to teacher ratio and packed learning to schedule handled by the undergraduate students.

### Conclusion

As per the results obtained it can be concluded that, the introduction of a portfolio for the obstetrics and gynaecology professorial appointment for medical students and to maintain it during the professorial appointment is possible, with good student satisfaction despite the higher number of students.

### Author declarations

**Authors' contributions:** All authors in the study contributed to the planning, data collection, analysis,

and writing of the manuscript. The final manuscript was read and approved by all the authors.

### **Compliance with ethical standards**

**Conflicts of interest:** All the authors of this study have no conflicts of interest.

**Ethical approval:** Due to the nature of the study, ethics approval was not obtained.

**Informed consent:** Informed consent was taken from the students before entering them into the study.

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