

## Implementing Programmatic Assessment in the Two-year Clerkship of Medical Education Moving Toward Competency-based Education: A Case and Solution

**Feda Anisah Makkiyah<sup>1\*</sup>**

<sup>1</sup>Department of Neurosurgery, Faculty of Medicine UPN Veteran Jakarta, Indonesia  
MHPE student, Maastricht University

**Email: [fedaanisah@upnvj.ac.id](mailto:fedaanisah@upnvj.ac.id)**

**Abstract:** Last October 2022, medicine school UPN Veteran Jakarta was audited by external assessors of the National Accreditation Agency. According to the National Accreditation Agency's assessment, one area that needs improvement is the performance evaluation standard. The agency emphasized that the assessments in the clerkship program were still subjective. Based on the assessor's report, we tried to reform our assessment in our clerkship program. One month after the assessors' report, the dean established a team consisting of the vice dean of academics and several staff members. The team searched for literature about programmatic assessment in clinical rotation or clerkship programs in Scopus or PubMed databases. The vice dean of academics performed the analyses and the solution. This analysis was presented in front of the dean and another team member. This study presented seven points that we needed to establish in the design, which are implementing programmatic assessments that also cover high-stakes examinations, interacting courses, and prioritizing the well-being of students. Several items need to be prepared thoroughly to implement programmatic assessment. Digital technology and other infrastructure should be fulfilled to implement many assessments that support the programmatic assessment concept. However, those means are possible because the benefits outweigh the disadvantages.

**Keywords:** *Programmatic\_Assessment; medical\_education; Clerckship\_students; Competency\_based\_education*

## INTRODUCTION

Last October 2022, the medicine school of UPN Veteran Jakarta was audited by external assessors of the National Health Accreditation Agency. The school has been established for almost three decades, and so far, it has more than 3,000 medical doctors as graduates. The last accreditation took place in 2017, and we got the B status for accreditation. Because it was a pandemic event, there was a one-year extended year.

According to the National Accreditation Agency's assessment, one area that extremely needs improvement is the performance of evaluation standards in clinical rotation. The agency emphasized that the assessments in the clerkship program were still subjective. Another point in the assessment that sparked their attention was the untransparent approach to the assessment and no measurements of longitudinal improvement of the competencies. The student's performance was only measured once, in an oral session with the clinical examiner.

Based on the assessor's report, the course coordinator and faculty staff tried to formulate our evaluation analysis in the clerkship program. We interviewed stakeholders from several students and several clinical teachers. Here were several scripts of the interview: "We felt stressed out when the exam day was. Sometimes, because we were so nervous, we could not deliver the correct diagnosis, treatment or way of thinking. It was unfair to measure our performance based on once occurrence. If we were lucky, we could get the gentle and nice examiner, however in some occurrences we dealt with no mercy examiner" ( a student's comment).

The teacher's comment: "The high stakes examination at the end of each rotation was not fun for me, as a teacher. We felt so sorry if the student could not answer correctly and got bad scores. However, I think to be a doctor is a really not straightforward step. A student should fight to be a doctor. I could not deny that I would be so forgiving when I faced a young, obedient female student. It meant that I certainly helped her to pass the exam. On the contrary, when I was head to head with a young male student whom I knew had a bad reputation during rotation, I would certainly give him bad scores in spite of his correct answers and explanation."

Based on that interview and the recommendation of the external audit, the course coordinator and the faculty staff discussed to find the solution. The school thought that based on the current paradigm of nowadays assessment in medical education. The school believes that the concept of assessment for learning is more appropriate to the current medical education than assessment of learning. It means that we believe implementing programmatic assessment in clinical rotation would be the solution. So, this study formulates the research question: *How to design programmatic assessment in our clerkship program?*

## **METHODS**

One month after the assessors' report, the dean of school established a team consisting of the vice dean of academics and several staff members. The team searched for literature about programmatic assessment in clinical rotation or clerkship programs in Scopus databases. Keyword used in Scopus databases was (TITLE-ABS-KEY ("programmatic assessment" ) AND TITLE-ABS KEY ( clinical AND rotation ) OR TITLE-ABS-KEY ( clinical AND clerkship ) ). here were 9 articles screened, and all the articles are included as references. The vice dean of academics performed the analyses based on the literature and the came uow with the solution. This analysis was presented in front of the dean and another team member.

## **FINDING AND DISCUSSION**

The main impetus for the educational reform was the need for changes in medical education to meet future societal demands (increasing emphasis on outcome-based and competency-based education; self-directed and lifelong learning) and to overcome the undesirable and unintended effect of assessment on student learning and/or teacher behavior (e.g., assessment can lead to surface learning approaches, strategic choices, and compliance). Redesign the clerkship program's two-year assessment.

The new curriculum must align with the fundamental tenets of competency-based education and the broad National Indonesian Doctors framework, be founded on current and cutting-edge scientific knowledge, and represent medical schools' leading role in teaching and research. Patient safety, expected transparency, and accountability in the assessment are the guiding concepts of competency-based education (Lockyer et al., 2017). Students should prioritize patient safety in their interactions and clinical procedures. Regarding the assessment, students must have access to their examination results, and safeguards must be in place to secure data and eliminate subjectivity. Subjectivity was a significant factor in the external accreditation assessor's evaluation judgments.

### **Proposed methods:**

The proposed implementation of the method of teaching and assessment are (strengths and weakness, dilemma of the methods, and well-justified suggestions for how to manage this dilemma:

1. We propose implementing a programmatic assessment that includes a comprehensive portfolio, progress test, and formative assessment. The strength is the top-down leadership that supports improvement. The weakness would be the difficult implementation of the comprehensive portfolio. Workshops should be held to teach about giving feedback (teachers) and how to write reflections (students).

2. An integrative course consisted of emergency rotation and a week of preparation on campus to strengthen the affective, cognitive, and psychomotor outcome and prepare the students for the national examination. This course is intended to integrate all the competencies and refresh the cognitive and psychomotor aspects of competencies before the national exam. The interdepartmental collaboration to sit together to formulate the learning objectives for this course would be the issue. The solution is to hold a non formal three-day discussion that invites all departments to establish interdepartmental teamwork to plan, organize, and evaluate the course.
3. Assessment for learning that focuses on building personal competencies (process) rather than passing the department examination; High-stakes tests (CBT and OSCE at campus) allocate 30% of the total scores. The rest, or 70% of the scores, are given to the daily performance in workplace-based assessment (WBA) such as DOPS, Mini-CEX, and multi-source feedback. These WBA have weaknesses such as inadequate time to fill by supervisors, especially in busy departments. The solution to this inadequate time is to find a hospital to have clerkship rotation; the ratio of supervisors and students in my country should be below 1 to 5.
4. We perform high-stakes examinations such as OSCE and CBT on campus. The reason is (1) equality in the standard performance of assessments and (2) the time and infrastructure are more possible to be held on the campus and by the campus staff. The dilemma would be to increase the workload for lectures and staff on campus. Solution. To hold the OSCE on campus and invite the supervisors in the hospital as the examiners would be the answer to the lack of examiners and decrease the workload of staff on campus.
5. Increased well-being approach to students—There is a break between the clerkship to improve the well-being of the students, increase their EPA achievement, and promote lifelong learning. Dilemma. The students do not use this break-off to reflect their progress. Solution. The form of narrated feedback should be filled out during this break-off progress and submitted to their mentors.
6. Digital approach. The assessors brought about the issue of transparency. The learning management system of the teaching and assessment might answer the transparency aspects. Strengths. The students can monitor their progress on their site, and the teachers can post the grade individually. Weakness, high cost and special skills required to operate the system. Solution, the faculty should allocate more budget and support all the troubles during the implementation of this digitized system.
7. A mentorship. A student will be monitored by a mentor during the two years program. The mentor has access to the student's portfolio to monitor the growth of competencies. Dilemma. Not all the mentors comply with the timeline to the schedule of teaching and learning. Solution. There should be a clear job description and incentive to these mentors.

Table 1. Overview of assessment methods that are in line with Miller's pyramid (Miller, 1990)

Stage	Corresponding methods to assess performance
Does	Direct Observation Procedural Skill (DOPS)
	Multi source feedback
	Portfolio
Shows how	OSCE
Knows how	Mini-CEX
Knows	Multiple choice questionnaire (CBT)

All the assessments should be prepared with all these measures, such as actions (collection, synthesis, interpretation, and weighting of data), support (faculty development and psychometric analysis), documentation (rules, plans, and information management), and accountability are all components of an assessment program (with regard to scientific research, external reviews, cost-effectiveness, and political and legal requirements)(Dijkstra et al., 2010). This should be carefully prepared in order to have a smooth implementation of the assessment.

Another important point is that assessment should be undertaken to support the growth of professional competence and assure sound decision-making concerning learners' and physicians' fitness for practice. (Govaerts et al., 2019).

Nowadays, the assessment of learning (AOL) is not in line with competency-based education; as CBME drives learning, assessment for learning (AFL) is the most appropriate approach. Another purpose of assessment in CBME is to make a judgment about readiness to progress (Bok et al., 2013).

The full portfolio serves as a tool for evaluating the student's progress and as support for their learning process (Driessen, 2017). The students should be guided by mentors who help them use the portfolio data to understand their competencies. At the end of the training period, the students must prove they have met all the requirements. The teacher should check the portfolio; this is the time to give constructive feedback and observe the students' self-directed learning.

Table 3 depicts the assessment schedule and global planning for the assessments in year one and year two. We propose to divide it into years one and two because we want to strengthen the competencies by first building the non-surgery year to the surgery year (year 2). The horizontal and vertical alignment of the expected competencies implementation is suitable for the spiral curriculum model Core principles of CBME assessments (Lockyer et al., 2017).

Table 2. Core principles of CBME assessments, aligned proposed methods, and insight from the literature

Principles of CBME assessments	Aligned Proposed method	CanMEDS frameworks	Insight from literature
Assessment for learning	Programmatic assessment (progress test, feedback, summative assessment, portfolio)	Professional, communicator, Scholar, Collaborator, Health Advocate, Leader, Medical Expert	1. The decision to pass or fail is not based on a single piece of information (assessment event). 2. The program uses a mix of ways to test students on purpose. 3. A constant conversation with the learner helps them use feedback and learn on their own. 4. The number of data points you need depends on how important the assessment decision is. 5. A group of assessors makes professional decisions about things that matter a lot (van der Vleuten et al., 2019).
Multiple methods	Workplace Based assessment (DOPS, Mini-CEX), OSCE, CBT, multi-source feedback, MCQ written test	Professional, communicator, Scholar, Health Advocate, Medical Expert	A mini-CEX form gives ratings and narrative information on all relevant competencies, such as communication. A multi-source feedback form is set up the same way. This lets information from different instruments about communication skills be put together. In short, a single data point is best for learning, not for deciding whether or not someone will pass or fail ((van der Vleuten et al., 2019). Written test questions are ideally suited for the evaluation of cognitive knowledge acquired during courses of study in the health professions and can be used to measure knowledge acquisition, reasoning skills, and comprehension of fundamental principles with great effect (Paniagua et al., 2019).

Principles of CBME assessments	Aligned Proposed method	CanMEDS frameworks	Insight from literature
Multiple assessors	Multi sources feedback	Medical Expert, collaborator, communicator, leader	Competency-based assessment is intended to improve the quantity and quality of feedback to learners, while supporting the practice of reflection and the development of skills for lifelong learning(Harris et al., 2017)
Selection and training of assessors	OSCE (performance test)	Medical Expert, Scholar, Collaborator, health advocator	Examinees have the opportunity to demonstrate a specific skill on performance tests or ability under controlled circumstances. Performance testing using standardized patients and others(Juul et al., 2019).
a reconceptualization of the role of psychometrics	Digital Approach	Medical Expert, Scholar	
a recognition of the importance of group process in reaching critical decisions about competence	Progress test final	Medical Expert	Progress tests are a solution to assessment for learning in competency-based education. They provide an opportunity to give feedback to learners as they improve (Pugh & Regehr, 2016). The second progress test serves as a means to screen students to register for the national exam. This process is performed by a team that will look at the students' portfolios and make a decision based on the scores and the portfolio.
	Improved Wellbeing – by 1 week off between rotation	Medical expert, Health Advocate, Leader	This strategy will improve the student's well-being and self-directed learning, as the students have time to reflect on their progress (autonomy, relatedness, competence)and increase the lifelong learning of students (Ott et al., 2022)

Principles of CBME assessments	Aligned Proposed method	CanMEDS frameworks	Insight from literature
	Integrative course	Medical expert, Collaborator, Health advocate	
	Entrustable Professional Activities	Medical expert, collaborator, health advocate, professional, communicator,	AAMC lists 13 EPAs. EPA aids faculty in entrustment decisions and guides students in self-directed learning. Adopting this strategy may provide medical education programs with a deeper understanding of medical students' clinical experiences (Bosinski et al., 2022).

## CONCLUSION

Several items need to be prepared thoroughly to implement programmatic assessment. Digital technology and other infrastructure should be fulfilled to implement many assessments that support the programmatic assessment concept. However, those means are possible because the benefits outweigh the disadvantages.

## LIMITATION

This case and solution for designing a program should be performed with a thorough analysis. This short analysis is meant to be a stepping stone towards a more real design. Many items may be overlooked in this analysis. I recommend that another team (medical education unit) review this short analysis to yield the best outcome for implementing the program.

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Table 3. Depicts the assessment schedule and global planning for the assessments in year one and year two

YEAR	YEAR 1							YEAR 2						
ROTATION	Clerkship A	OFF	Clerkship B	OFF	Clerkship C	OFF	Clerkship D	OFF	Clerkship E	OFF	Master thesis project	INTEGRATIVE COURSE	OFF	NATIONAL EXAM
DURATION	12 Weeks	1 week	12 weeks	1 week	12 weeks	1 week	12 weeks	4 weeks	16 weeks	1 week	16 weeks	4 weeks	4 weeks	
Instructional formats	At hospital: Mini CEX, DOPS, feedback. At campus biweekly tutorials on campus and case based discussion, and short paper										Supervisor meetings, draft versions, and review discussions			
Assessments	***	OFF	***	OFF	***	OFF	***	OFF	***	OFF			OFF	
							PROGRESS TEST 1					PROGRESS TEST FINAL		

\*\*\*Total scores consist of 70% WPA (daily performances), 15% CBT and 15% OSCE at the end of the rotation. Feedback is given as a formative assessment.

\*\*\*\* Progress test 1 and FINAL is continuum of progress test of undergraduate program, and serves as formative assessment. However, the PG final serves as a screening to apply for the national exam.

Comprehensive department serves as a compilation of all departments. Students have their rotation in the emergency department and this part serves as a preparation course for the national exam.

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