

Evaluating a programme of assessment at a medical school

Nadia El Asmar, MD.

Submitted for the Degree of Masters in Health Professions Education:

Assessment and Accreditation, Keele University

DECLARATION

I certify:

(a) That the above dissertation/project is my own account, based upon work actually carried out by me, and that all sources of material not resulting from my own experimentation, observation or specimen collecting, including observational data, have been clearly indicated.

(b) That no part of the work incorporated in the above dissertation/project is a quotation from published or unpublished sources, except where this has been clearly acknowledged as such, and that any specific direction or advice received is also properly acknowledged.

(c) That I have read, understood, and abided by the terms of Regulation VII1.5 below:

CONDUCT WITH REGARD TO DISSERTATIONS, PROJECTS, ESSAYS ETC.,
WHICH FORM PART OF A FINAL EXAMINATION FOR ASSESSMENT
PURPOSES

(a) Titles must be approved or specified by the Department concerned in accordance with the provisions in the Calendar.

(b) The dissertation, projects or essays etc. shall be in the student's own words, except for quotations from published and unpublished sources which shall be clearly indicated as such and be accompanied by full details of the publications concerned. The source of any map, photograph, illustrations, etc. shall be similarly indicated.

The student shall indicate clearly the sources, whether published or unpublished, of any material not resulting from his own experimentation, observation or specimen collecting, including observational data. Students will be required to sign a statement to that effect. Failure to comply strictly with these requirements may be construed as cheating.

Signed

Nadia El Asmar, M.D.

Date: September 22, 2018

ACKNOWLEDGEMENTS

I would like to thank my project advisor, Professor Jack Boulet, for all his unconditional support during the past year. His perpetual presence and willingness to offer advice were irreprehensible.

I am also thankful to Professor Janet Grant and Professor John Norcini for all their encouragements during the past three years.

Finally, I would like to express my deepest gratitude to my husband Jean for his invaluable support. To my son Michel, his wife Sandra and their wonderful children Jean and Maria. To my daughter Rachel for her continuous encouragement throughout the years of my study.

TABLE OF CONTENTS

ABSTRACT	7
LIST OF ABBREVIATIONS.....	8
INTRODUCTION	9
Background.....	10
History.....	11
METHODS.....	13
LITERATURE REVIEW.....	14
Identify the appropriate framework	16
The Maastricht Framework	18
Assessments at the LAUSOM	19
Applying the framework to the LAUSOM programme of assessment	26
Quality criteria for a self-evaluation of a programme of assessment.....	32
Quality assurance for the clinical skills assessment programme of Med III....	34
RESULTS.....	43
DISCUSSION.....	46
CONCLUSION.....	51
REFERENCES.....	52
APPENDICES.....	54
Appendix I.....	54
Appendix II.....	61
Appendix III.....	66
Appendix IV.....	68

ABSTRACT

Frameworks are used to describe educational assessment and to conceptualize the learning outcomes of a programme of assessment. Frameworks help in the evaluation efforts by delineating the important parts of an assessment programme. Problems arise when we don't have frameworks to describe and determine successful performance and to assure that required competence is achieved.

Purpose: This study was conducted to look at different frameworks of assessment and to choose one that is appropriate to our context and curriculum. Then, to build a stronger assessment programme, the framework criteria were used to evaluate the quality of our assessments.

Method: A descriptive review of all frameworks of assessment that can be applicable to undergraduate medical school was conducted based on a comprehensive literature review. Then, based on several criteria, one framework was chosen to evaluate the programme of assessment of the Lebanese American University Gilbert and Rose-Marie Chagoury School of Medicine (LAUSOM). The clinical skills assessment programme in Med III was evaluated for quality using the 12 validated criteria of the Maastricht framework.

Results: All domains of the chosen framework were reviewed, conceptualized, and applied to our assessment system. This process revealed that the programme of assessment at LAUSOM fits appropriately with the Maastricht framework. The review of the clinical skills assessment programme in Med III indicated that some improvements are necessary, mainly in the research area.

Conclusion: For quality assurance, it is important to evaluate programmes of assessment through an appropriate and applicable framework. This study revealed the usefulness of this process in evaluating programme of assessment as a whole.

LIST OF ABBREVIATIONS

AAMC	Association of American Medical Colleges
ACGME	Accreditation Council for Graduate Medical Education
AMAC	Australian Medical Assessment Collaboration
CanMEDs	Canadian Medical Education Directions for Specialists
CDC	Centers for Disease Control and prevention
CPE	Clerkship Performance Evaluation
DOPS	Direct Observation of Procedural Skills
EPA	Entrustable Professional Activities
GME	General Medical Council of UK's Tomorrow's Doctors
IFOM	International Foundations of Medicine
LAUSOM	Lebanese American University Gilbert and Rose-Marie Chagoury School of Medicine
LOOP	Learning Opportunities, Objectives and Outcomes Platform
MCQ	Multiple Choice Question
Med III	Medical student year III
Med IV	Medical student year IV
Mini-CEX	Mini-Clinical Evaluation Exercise
NBME	National Board of Medical Examiners
OSCE	Objective Structured Clinical Examination
OSPE	Objective Structured Practical Examination
RIME	Reporter-Interpreter-Manager-Educator
SOM	School of Medicine
SP	Standardized Patient
WHO	World of Health Organization

INTRODUCTION

Medical education has become increasingly competence-based and the three domains, knowledge, skills and attitudes, must be adequately integrated to guarantee an effective outcome for the students. Therefore, several assessment methods are needed to monitor and evaluate the acquisition of competence. The traditional knowledge test is no longer the main assessment method, but just one of the components of the assessment battery needed to evaluate the performance of the students. Consequently, medical education has shifted from an individual assessment culture to one that relies on a programme of assessment (Sluismans and Struyven, 2014).

Assessment in medical education is multifaceted. It drives and stimulates learning, provides information on educational efficacy to institutions and teachers, and helps protect patients (van der Vleuten et al, 2017). It is one of the most important components in a curriculum. Assessment of the learner is important for the student, for the public, for the school and for the accreditation bodies (Harden and Lilley, 2018). The assessments, as part of a programme of assessment, can be summative, with high-stakes consequences for the student, or formative, considered as an important learning tool that affects the motivation of the learner. To assure that graduates have met minimum standards and are fit for purpose, evaluation of the programme of assessment is needed (Norcini et al, 2011).

Our medical school was established in 2009 with clear goals and courses delivered in an integrated curriculum. The teaching and assessment tools are designed to be well-aligned with the objectives. It is time now, after nine years of implementation, to evaluate our assessment programme. The programme evaluation data, as an integral

part of the educational improvement process, can help us adapt our educational model to become more efficient and effective, and produce highly-qualified graduates.

To better understand a programme of assessment, and establish its value, an assessment framework is needed. It provides a conceptual map of the learning outcomes of the programme, along with details of how achievement of the outcomes can be measured. Frameworks have also the capacity to improve validity and reliability in assessment, allowing test developers to create more robust assessment instruments (Pearce et al, 2015).

The purpose of the current study is to look at the different assessment frameworks available in the medical education literature, to describe them, discuss their similarities and differences, and apply the most appropriate framework to our medical school. Then, as an example, and for quality assurance purposes, the assessments employed as part of the clinical skills programme will be evaluated. After a review of the different frameworks, challenges relating to evaluation of a programme of assessment will be discussed. Considerations related to the choice of the appropriate assessment framework and to the practical process of the evaluation of the programme will be debated. Finally, recommendations for changes and improvement to the evaluation process, focusing on clinical skills, will be proposed. The ultimate purpose of evaluating the programme of assessment is twofold: for quality assurance; and for gathering data to support external accreditation.

Background

In education, the term evaluation is often used interchangeably with assessment, particularly in North America. While assessment is primarily concerned with the measurement of student performance, evaluation is generally understood to refer to the process of obtaining information about a course or a programme of teaching. Mehrens (1991) identified two of the purposes of assessment; to evaluate the teaching methods used and to evaluate the effectiveness of the course or the programme. As asserted by Goldie (2006), assessment can therefore be looked upon as a subset of the evaluation of a programme.

According to Fitzpatrick, Sanders and Worthen (2004), programme evaluation is defined as the identification, clarification, and application of defensible criteria to determine a programme's value in relation to those criteria (Vassar et al, 2010). In broad terms, this process involves determining standards to assess quality, collecting appropriate information, and applying the standards to evaluate the effectiveness of the programme, in this case the programme of assessment. This approach is done through the systematic collection and analysis of information related to the design, implementation, and outcomes of the program, for the purpose of monitoring and improving its quality (ACGME 2010a).

History

Modern evaluation theories and practices have their intellectual roots in the work of Tyler (1935) in education, Lewin (1948) in social psychology, and Lazarfield (Lazarfield and Rosenberg, 1955) in sociology. The main stimulus for the development

of modern evaluation theories and practices was the rapid economic growth in the western world after the second world war, particularly in the United States. By the early 1970s, the field of educational evaluation had grown rapidly, and many formal evaluation models were proposed. According to Goldie (2006), there was growing belief in the power of evaluation to transform poor educational programmes into highly effective ones. As a result of reflection on experience, the wider field of evaluation has diversified and changed to become a practice-driven field. In the last 40 years, it has emerged as an applied science in its own right.

Assessment frameworks have been formulated for several reasons. Above all, they provide a structured conceptual map of the learning outcomes of a programme of study and detail what is to be assessed, as evidence of learning described by the requisite curriculum content. Frameworks have the capacity to improve both validity and reliability in assessment, and allow test developers to more easily create robust assessment instruments (Pearce et al, 2015). Frameworks are also powerful with respect to their effects upon the organization of curricula and upon what is learned. They delineate *a priori* what students are supposed to learn and help guide the teachers in their evaluations. They also allow them to more easily identify what to look for in a trainee, when to assess it, and in what order of importance the assessments should take place (Pangaro and ten Cate, 2013).

Assessment in medical education is a very challenging process and it is unusual to find comprehensive programmatic evaluation processes described (Vassar et al, 2010). Each medical school must find and establish an evaluation approach, typically dependent on its context and its purposes, to satisfy the evaluation process required for self-improvement and external accreditation.

METHODS

In the following section, the methods used for this study will be described. As a descriptive evaluation study, the purpose was to decide what framework was best to encapsulate the assessment system of the LAUSOM. The first step was to conduct a comprehensive literature review related to frameworks of assessment.

Following the literature review a list of relevant assessment frameworks was identified. This was based on their applicability for undergraduate medical schools and for their use in competence based education, where multiple performance domains are integrated and assessed. The characteristics and qualities of these frameworks were contrasted; then, their feasibility and applicability were elaborated.

Subsequently, and based on criteria including validity, practicality and applicability to our context, one framework was chosen to evaluate the programme of assessment at LAUSOM. Thereafter, the different criteria for each domain in the chosen framework were investigated to identify the strengths and weakness of our assessment system. This was done with the goal of making it more valuable to the school in terms of promoting excellence.

After evaluating the programme of assessment of our medical school, with the chosen framework, we were interested in evaluating the clinical performance assessments administered to our Med III students. For this purpose we evaluated our clinical skills programme, using the 12 validated quality assurance criteria of the Maastricht framework. Some of the criteria focus on the formative aspects of assessment quality and others on the summative aspects (Baartman et al, 2011).

LITERATURE REVIEW

The primary aim of this study was to evaluate the assessment programme in a new medical school after nine years of implementation. The literature review was the first step in the investigation; relevant information was gathered to answer the following questions:

- 1- What are the available frameworks for evaluating assessment programmes?
- 2- Which one is more suitable to our medical school?
- 3- How does the LAUSOM programme fit in the chosen framework?

The literature review was conducted using the following terms: “programme of assessment”, “programmatic assessment”, “assessment framework”, “programme evaluation”, “medical education and quality assurance”. Then, the references cited in relevant articles and some authors associated with assessment in medical education were added to the available literature on the topic. This process conducted using PubMed, Google scholar and Medline.

Sources reviewed included peer-reviewed journals and book chapters focusing on assessment in medical education. A number of organisations’ websites were also explored for their publications on programme of assessment, including the Centers for Disease Control and prevention (CDC) and World of Health Organisation (WHO). The review focused largely on the health profession education, without any restriction on publication date. Based on key words and content, the titles were used to narrow down the number of articles to be reviewed in detail. Then, the abstracts were reviewed to decide on the relevance of the articles.

Many assessment frameworks have been described in the literature. They were divided into three categories (analytic, synthetic, developmental). Analytic frameworks divide competence into domains; knowledge, skills, and attitudes (Pangaro and ten Cate, 2013). Well-known examples are, the Canadian Medical Education Directions for Specialists “CanMEDs” (Frank et al, 2015), the framework of the Accreditation Council for Graduate Medical Education “ACGME” and the framework of UK’s Tomorrow’s Doctors General Medical Council (GME) (Pangaro and ten Cate, 2013). The second category encompasses synthetic frameworks which combine domains into tasks such as the entrustable professional activities (EPAs) and the reporter-interpreter-manager-educator (RIME) structure (Pangaro and ten Cate, 2013). The third category is developmental. It focuses on progression through levels and has been described by Dreyfus and Dreyfus with five levels; novice, advanced beginner, competent, expert and master (Dreyfus and Dreyfus, 1980).

A framework reflects a vision within its own time and context. For this reason, several frameworks emerged in the last decade. ASPIRE, developed in South Australia, is an evidence-based framework that provides allied health practitioners with a structured process as well as a toolkit of 66 indicative criteria and sub-criteria designed to facilitate performance evaluation (UY et al, 2016). After a thorough study of this framework, it would be appropriate for an established medical school doing a self-evaluation for the third or fourth time. For a recently established school such as LAUSOM, a more user-friendly and practical framework would be apropos.

Another framework used by the Australian Medical Assessment Collaboration (AMAC) is relevant for the international community as it draws and builds on established processes in higher education assessment. It is divided in two domains, content and

process. It assesses the cognitive process in a clinical context, but the skills and behavioural process are not assessed (Pearce et al, 2015). It is a good start, but it is too soon to construct a scale (and sub-scales) for medical competence based on the AMAC framework (Pearce et al, 2015). As such, it would be of little value, at least in its current form, to evaluate the assessment programme at LAUSOM.

Other frameworks for program evaluation have been described in the literature, such as the CDC framework with the six steps and four standards, established in 1999 (Frantz and Kennedy, 2014). Unfortunately, it is a broad framework and does not cover the different domains and competencies required in medical education. Therefore, it is of limited use as an assessment framework in our context.

Harden and Lilley (2018) described recently the PROFILE framework for assessment with seven dimensions: programme-focused, real world, outcome/competency-based, for learning, impact, learner engagement and evaluation of assessment. It is a general framework that is similar to ASPIRE and the Maastricht framework (described later). Because the practical implementation is not elaborated yet, this framework would be of limited value.

Identify the appropriate framework

Our ultimate goal from the assessment system was to demonstrate, in an accurate and perceptible manner, that the graduate is qualified to practice medicine safely and effectively. We also wanted to assure that our assessments, as part of a programme of assessment, could be mapped to our curriculum. Therefore, we had to look for a programme of assessment framework where the three domains (knowledge, skills,

attitudes) and the three categories (analytic, synthetic and developmental) could be used. A framework applicable to our curriculum, and where a variety of assessment tools are used to reflect the learner's competence and his or her improvement over the course of study, was needed. We searched for a model where formative assessment is as meaningful as summative assessment, and where the student is able to analyse his or her own performance and formulate personal learning goals, thereby increasing motivation to learn (van der Vleuten et al, 2017). Ultimately, we wanted a framework where high stakes decisions could be defended based on the quality of the assessment data. All the frameworks previously described didn't cover all our requirements. Some of them were not well structured, other were not applicable to our integrated curriculum or were not outcome-based. Therefore, we continued our search. We needed a model where several tools of assessment can be matched with the goals of the curriculum and specific learning outcomes. Also, the framework must allow for various assessments to be combined to identify and reconcile the strengths and weaknesses of each method (Dijkstra et al, 2010).

Finally, we needed a framework with a high quality programme of assessment, based on a holistic approach, with a focus on student-centered learning. We found an innovative model, applicable to our context, with an integral well-designed approach and clear implementation guidelines. It is described in detail in the next section. More important, its relevance with respect to evaluation of the assessment programme is discussed and justified.

The Maastricht Framework

Based on our curriculum and assessment structure, the Maastricht Framework can fulfil our requirements. It is an outcome-based model of education where the acquisition of competencies moves beyond the knowledge domain into more authentic professional skills. Although it is a holistic approach, reliability, validity, objectivity and impact on learning, all of which are the important criteria for quality assurance of any assessment, are covered (van der Vleuten et al, 2017). It is also a framework with a focus on formative assessment and its effect on learning by the motivation through an effective feedback for each student (Obe and Hogard, 2016). This framework looks also to the whole assessment programme and aggregates small assessment points to have a clear image for the performance and improvement of each learner. At another level, this framework has twelve validated criteria for quality assurance that can be used as self-evaluation for the programme of assessment (Baartman et al, 2011).

The Maastricht Framework can assure the alignment and the integration of the three domains, knowledge skills and attitudes, and the interconnection of learning and assessment. It is how summative and formative functions are carefully balanced, and where assessment becomes part of a continuous cycle of measurement and feedback (van der Vleuten et al, 2017).

Therefore, this framework has the three perspectives that we are looking for in an assessment programme. The assessment *of* learning perspective, which covers the summative assessment and the issues of reliability, validity, objectivity and impact on learning. This perspective is well aligned with the Miller's pyramid (van der Vleuten et al, 2012); in the first three layers, the "*knows, knows how, and shows*", different

assessment tools can be used and be standardized for all learners (van der Vleuten et al, 2017). For the fourth layer, the “*does*”, assessments cannot be completely standardized, but principles of good assessment can be applied, with high quality assessments and an appropriate and diverse programme of assessment (Boulet and McKinley, 2013). The assessment *for* learning perspective, called formative assessment, might impact all learning situations with its good effect on learning and on teaching. This formative assessment has four effective strategies: feedback, self-assessment, peer assessment and rubrics (van der Vleuten et al, 2017).

Finally, the framework proposes an assessment as a learning perspective, where assessments are seen as an integral approach by looking at the design of full assessment programs and where methods of assessment are purposefully selected because of their intended positive effect on learning. The programme is evaluated regularly and modified accordingly. Similar to how a curriculum is changed, an assessment programme is planned, implemented, governed, evaluated and adapted. Conclusively, and with this approach, the assessment program should tell a story about each learner (van der Vleuten et al, 2017). In the next section, the curriculum and assessment programme at LAUSOM will be briefly reviewed and then the alignment with the chosen framework will be elaborated.

Assessments at the LAUSOM

At LAU Gilbert and Rose-Marie Chagoury School of Medicine (LAUSOM), competency-based education is the cornerstone of the clinical education and assessment. The curriculum is integrated, combining basic and clinical sciences. The content is organized by modules in the pre-clinical years and clerkships in the clinical

years. Teaching methods consist of a blend of conventional approaches (lectures, bed-side teaching) and more modern methods (problem-based learning, small-class tutorials and simulation). The curriculum in years I and II embraced four competency related themes: Basic and Clinical Sciences, Clinical Competence, Professional and Behavioural, and Social Medicine and Public Health. These themes will continue to be woven into the teaching and learning of Medicine in years III and IV, where students will continue to acquire knowledge, skills and attitudes that will shape their personality and expertise as future caregivers. By the end of medical school, students are expected to achieve a level of proficiency that will not only prepare them for graduate medical education, but also build the foundation for lifelong learning. For this purpose, and to assure that the well-defined learning objectives and goals are appropriately aligned with the outcomes required, a battery of assessment tools is needed for each level.

In 2017, and after a comprehensive and thorough review and evaluation of the curriculum, we decided to shift the Competency Framework from the Canadian model, which is the CanMEDs Physician Competency Framework, to the American model, provided by the Association of American Medical Colleges (AAMC) (Englander et al, 2014). The rationale was mainly the alignment of the undergraduate program to the residency program which is currently following the Accreditation Council for Graduate Medical Education-International framework (ACGME, 2010). Therefore, the competency outcomes of the programme are well defined, and each assessment tool is well aligned with the related learning objectives and teaching methods. Nevertheless, we never had the opportunity to oversee the whole programme of assessment in its entirety. Doing this, combined with a strong evaluation design,

allows for the collection of information to improve it, as a whole, and make it even more relevant.

An effective assessment system in competency-based education should be robust and multifaceted (Norcini et al, 2008). With this in mind, it is important to describe our assessment program, place it in a relevant framework and discuss the strengths and weaknesses. For the preclinical years, several tools of assessment are used such as multiple choice questions (MCQs), objective structured clinical exams (OSCEs), objective structured practical exams (OSPEs) and Essays. The majority of these assessments are summative with formative components, where feedback is given when the performance of the learner is not satisfactory. The traditional dichotomy between formative and summative assessment is redefined as a continuum of stakes, ranging from low to high stakes decisions (Obe and Hogard, 2016). The aim is to adequately assess knowledge, skills and attitude at their requisite level and to improve the performance of the students.

The assessment of knowledge has two components; local assessments generated by trained faculty, and international assessments using the customized National Board of Medical Examiners (NBME) shelf exams after each module, and the International Foundations of Medicine (IFOM1) exam at the end of Med II. Several essays are also required from the students in the social medicine discipline during the preclinical years. These tasks are designed to assess their knowledge and their writing talents. The assessment of the clinical skills and attitude is done through the objective structured clinical examination (OSCE) four times per year. "An OSCE is an assessment tool based on the principles of objectivity and standardization, in which the candidates move through a series of time-limited stations in a circuit for the purposes of

assessment of professional performance in a simulated environment. At each station candidates are assessed and marked against standardized scoring rubrics by trained assessors” (Khan et al., 2013, p.1043).

For histology and pathology, the objective structured practical examination (OSPE) is done after each module. A practical exam of anatomy it is conducted twice per year. Along with the regular mandatory meetings with the advisor, several assessments tools are used for formative purpose in the preclinical years, Med I and Med II. Formative assessments are important for motivation and improvement of the students through effective feedback (Tillema et al, 2011).

MCQs are uploaded regularly on blackboard, and linked to the learning objectives of the week. They allow the student to evaluate his/her performance and discuss their educational weaknesses with the instructor if needed. There are also Problem Based Learning (PBL) sessions, where the student prepares and presents one topic every week, and receives feedback from the instructor on the content and on the performance during the presentation. Finally, the student receives individual feedback in each station of the OSCE and group feedback after the OSCE. This debriefing at the end, allows the students to discuss the cases with the attending faculty. The aim is to ask pertinent questions for learning purposes.

A description of the assessments employed at the LAU school of medicine, for the preclinical years are provided in the following page in Table A.

	Summative (Assessment of learning)	Formative (Assessment for learning)
Med I	MCQ (Local + NBME) OSCE OSPE (Histology/ pathology/ Anatomy) Essays (Social Medicine)	MCQ (Self-assessment) PBL Problem Based Learning Mock OSCE (at the beginning of the year) Year Long Project (YLP)
Med II	MCQ (Local + NBME) OSCE OSPE (Histology/ pathology/ Anatomy) Essays (Social Medicine) IFOM	MCQ (Self-assessment) PBL YLP (Year Long Project)

Table A : Assessments Employed at the LAU School of Medicine for pre-clinical years.

In the clinical years, there are far more challenges. The assessment tools are more diverse with the formative assessments being much more elaborated. The balance between summative and formative tools is consistently monitored to facilitate learning and enhance the motivation of the students.

In Med III, several summative tests are offered and, as for the preclinical years, MCQ is the main cognitive assessment tool used, mainly because the knowledge, the synthesis and the judgment assessment through MCQ is evidence-based. MCQ in Med III has two components, the local one tailored for each clerkship and offered six times per year, and the NBME subject exams offered twice per year. Another local MCQ assesses the longitudinal programme and covers general topics such as medical ethics, patient safety, and computational health informatics. It is offered at the end of the year. The OSCE is another summative assessment tool, offered twice per year, and includes several stations for each clerkship area. It assesses appropriately the performance of the students in different domains such as clinical reasoning, communication skills, professionalism and patient care.

Clerkship clinical performance evaluation (CPE) is another summative assessment tool, based on the observation of the students in the workplace. Multiple, well-trained, assessors use descriptors and clear rubric to complete the form of evaluation after each rotation (Appendix I). The last summative test is the Direct Observation of Procedural Skills (DOPS), where specific examiners observe and rate trainees performing procedures or specific tasks. It is a Pass/Fail test but it is mandatory to perform appropriately all the required procedures to be considered for graduation. For Med IV, it is the same battery of summative tests but the NBME is offered once per year, as a comprehensive exam, as well as the OSCE and the locally-developed MCQ exam. A description of the assessments employed at the LAU school of medicine, for the clinical years are provided in Table B.

	Summative (<i>Assessment of learning</i>)	Formative (<i>Assessment for learning</i>)
Med III	MCQ Local + NBME OSCE (Clinical skills) CPE (Clinical performance evaluation) DOPS (Direct observation of procedural skills)	NBME self-evaluation Mini-CEX 360-degree (patient and staff evaluation) Simulation Portfolio
Med IV	MCQ (Local + NBME) OSCE CPE (Clinical Performance Evaluation) Essay for Continuity Clinical Experience (Med III- Med IV)	NBME self-evaluation Mini-CEX 360-degree (patient and staff evaluation) Simulation Portfolio

Table B : Assessments Employed at the LAU School of Medicine for clinical years.

Formative assessment can be the foundation of life learning process of the student. If constructed appropriately, and accompanied by meaningful performance feedback, it can motivate students to learn (van der Vleuten et al., 2017). As a result, many formative assessment tools are offered in the clinical years starting with the Mini-Clinical Evaluation Exercise, or mini-CEX, offered once per clerkship in Med III. Practically, it is an encounter with a real patient, under the observation of an attending physician (Norcini and Burch, 2007). The purpose is to evaluate the clinical performance of the student including history taking, physical examination, communication skills and management. Afterward, a feedback session is conducted to discuss strengths and to identify areas for improvement (Norcini and Burch, 2007). The second formative assessment is based on the Multisource feedback or 360-degree assessment. It is a systematic collection of performance data and feedback for an individual trainee using an evaluation form completed by a number of patients and staff (Norcini and Burch, 2007). This is done approximately four times in Med III and when needed in Med IV.

Simulation sessions are also a good environment for formative feedback, where several scenarios are offered in each clerkship and the performance of the students is discussed within the small group and individually when needed. Personal feedback is also given to the student several times a year in each clerkship and during the meeting with the advisor when the contents of the portfolio are discussed. Furthermore, students with identified weaknesses and gaps in the OSCE are offered remediation, including additional formative assessments such as mini-CEX, with a thorough monitoring of their performance during the remaining clerkships.

Applying the framework to the LAUSOM programme of assessment

Now that the assessment program LAUSOM has been described, it is important to illustrate how it fits in the Maastricht framework, also called Programmatic Assessment. Given that 'Programmatic Assessment' is a suitable fit, a self-evaluation of a specific programme of assessment, the clinical skills programme in Med III, can be conducted. This evaluation can be conducted using the twelve new criteria of quality assurance specific to competence-based education and programmatic assessment. The purpose is to evaluate the programme of assessment of the four years as a whole, and then, as an application of the chosen framework, to assure the quality of one element of the programme.

The Maastricht framework has five dimensions: *Program in action*, *Supporting the program*, *Documenting the program*, *Improving the program* and *Accounting the program*. All the dimensions are under the *Goals* component because there should be a purpose of the assessment system that guides the whole process (Figure 1). Also, the quality of assessment programme must be framed in terms of fitness for purpose, which implies that clearly defined programme goals are prerequisite for high-quality programs (Dijkstra et al, 2010).

Each dimension, with its layers, has been evaluated through the guidelines elaborated in 2012 by Dijkstra and his colleagues. He described 10 general guidelines for designing the programme of assessment, which are already implemented in our school and adequately covered. These guidelines cover the purpose, the infrastructure as well as the expertise of stakeholders (Appendix II).

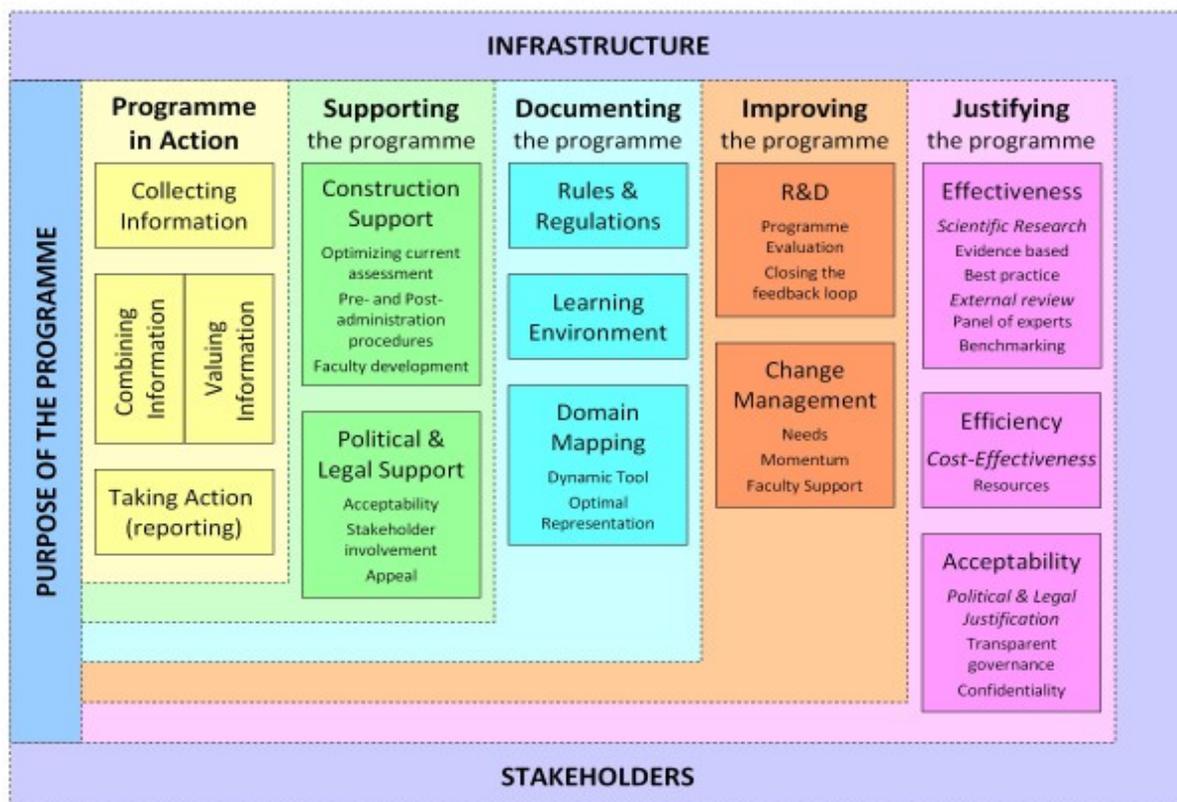


Figure 1- Framework for programmes of assessment. (Dijkstra et al, 2012).

The first dimension in the Maastricht framework is the *Programme in action*, which refers to the assessment activities as executed and where they are located (Timmerman and Dijkstra, 2017). This dimension is divided in four elements, collecting information, combining information, reporting, and decision making. The *collection of information* covers all the facets of the assessment programme starting with the selection of an assessment component for the programme, to the alignment with the learning objectives, to the process of the assessment itself, and ultimately to the information collected about the performance of the learner (Dijkstra et al, 2010). Different assessment tools have different strengths and weaknesses; therefore, decisions concerning the weight of each component in the contribution to the purpose of assessment must be made (Dijkstra et al, 2012). Various kinds of information must

be collected because, in *combining information*, descriptive or qualitative and quantitative data are equally important with respect to being able to evaluate the learners' abilities and readiness to practice. For all stakeholders, this combination must be defensible, meaningful and clearly defined by purpose, content and policies (Dijkstra et al, 2012). Reporting or *valuing information* is the third element in this dimension; it determines strengths and weaknesses of the candidate and how to use all the information collected. For example, assessment decisions should be in proportion to the stakes of the examination, with a rationale provided for the standard setting procedures (Dijkstra et al, 2012). Finally, the last element is *taking action*, which includes all activities resulting from the collected, combined and valued information relating to assessments. It implies consequences that should be proportionally related to the purpose of the assessment, starting from feedback to any pass/fail decision (Dijkstra et al, 2010).

When we reviewed all the 21 detailed guidelines of the Maastricht framework related to the first dimension, (Appendix II) we noticed that the programme of assessment at LAU SOM fits quite well within this part of the framework. Only one change needs to be implemented in the future; "the effect of the instruments on learner behaviour should be taken into account" (Dijkstra et al, 2012). This point is not well defined and taken into consideration in our programme. The assessment committee usually focusses more in the content, the format, and the scoring of assessment. We need to elaborate more on the scheduling of assessments and its potential impact on students.

The second dimension, which guarantees a high standard of assessments of the program in action, is *Supporting the program*. It has two components, the first is the

technical or construction support, contributing to the quality of assessment materials. It starts with faculty development, after which trained group of faculty, experts in the field, are required to write and review each item before the assessment is conducted. Then, after administration of the assessment, psychometric and other analyses are conducted to determine if the test scores meet the required characteristics. The second component is the political and legal support, targeted to have clear procedures, to increase transparency and acceptance by all stakeholders. Protocols and procedures should also be in place to support appeal and second opinion to avoid unfair conduct (Dijkstra et al, 2010). Again, this dimension with its 12 criteria is appropriately covered at LAU SOM (Appendix II). We have an office of, and an Assistant Dean for, faculty development. Several times per year, workshops on different topics of assessment are offered by local and international experts. A committee for assessment was also convened recently with two subcommittees, one for the pre-clinical years and one for the clinical years. Their task is to write, correct and review the items of the tests. After each assessment, a battery of analyses is conducted by an officer of assessment and results are provided with all the details to the stakeholders to review. This includes the test as a whole and the problematic items, when identified. The second component is also well-addressed by all our policies and procedures which were reviewed lately to target all the problematic issues that we faced during the last few years.

The third dimension is *Documenting the programme*, which refers to describing the learning environment, content domain mapping, and rules and regulations (Timmerman and Dijkstra, 2017). It covers 12 guidelines and is mainly about recording information that can help to establish a defensible programme of assessment and support quality improvement (Appendix II). It also enhances the clarity and

transparency of the programme (Dijkstra et al, 2010). This dimension is divided in three parts. The first one relates to the rules and regulations that should support the purposes of the programme of assessment and the impact that it can have. At the same time, it must be pragmatic and concise to avoid complexity. The second part describes the relation between the educational system and the assessment programme. The third part concerns mapping different domains within the assessment programme, and how all the domains must be appropriately covered (Dijkstra et al, 2012). Documenting the programme is a difficult task; it is implemented in small parts but, to map a whole domain in a clear and concise way, it has to be in an appropriate system. For this purpose, and to map and align all the curriculum, starting from the learning objectives to the teaching tools, and assessment tools, an electronic system, the learning opportunities, objectives and outcomes platform (LOOP), was purchased last year at SOM. It is a system where all domains are clearly mapped with the relevant detailed learning objectives and the related assessment tools. This system is now in the process of being implemented. It will clearly demonstrate how the summative and formative assessments are balanced in our programme of assessment in the pre-clinical and the clinical years. It will also allow us to document how many assessments tools are used to assess one domain, and many assessment domains can be covered with one tool.

The fourth dimension is *Improving the programme* and has seven related guidelines (Appendix II). Based on change management principles, *Improving the programme* is done through an evaluation of the current programme with an eye for the development of future assessments (Timmerman and Dijkstra, 2017). A regular process of evaluation and improvement should be in place, closing the feedback loop. Improvements should be supported by new scientific evidence or evidence of best

practice. Research can also be an important foundation for development and improvement, keeping in mind that change management should be supported by a good training and monitoring (Dijkstra et al, 2012). In our context, regular process of evaluation is conducted by students and teachers after each exam using an anonymous electronic survey system. The results are reviewed by expert educators and changes are implemented when needed. Nevertheless, research remains a weak area in our programme of assessment and needs to be improved. Research from all the available assessment data that we have can improve the quality of our assessment system and support, with evidence, the content and structure of our assessment programme.

The fifth dimension is *Accounting the programme*, done mainly for external parties to support the acceptability and scientific underpinning of the assessment programme (Timmerman and Dijkstra, 2017). It has ten related guidelines and the purpose in this dimension is to defend the current practices of the programme in action and demonstrate that specific assessment goals are met in light of the overarching programme goals. Accounting for the programme deals with the rationale of the programme and its cost-effectiveness. It has to be also evidence-based, and should be reviewed periodically by a panel of external experts. In our context the lack of research has already been discussed, and given that the school is in the process of seeking international accreditation, all our assessment programmes will be reviewed and evaluated this year by external experts. Cost-effectiveness is an important subject and it is periodically discussed with the Dean's office to make sure that the allocation of resources is justified, transparent, and explicit. As for our specific assessment programme, it is openly described in our academic policies and student handbook (Appendix IV). The system is explained to the students by the associate and assistant

deans at the beginning of every year. A description of each assessment tool and its purpose is discussed with all stakeholders.

Beside few points of improvement, mainly in the research area, our program of assessment fits adequately in the Maastricht framework; it covers more than 90% of the 72 guidelines described by Dijkstra. Each guideline was reviewed, compared and linked to the related domain in our programme of assessment. The Maastricht framework helped us to assure that our programme of assessment is appropriately covering all the perspectives of a good assessment system. It adequately covers assessment *of* learning, assessment *for* learning and assessment *as* learning.

While the Maastricht framework fits, and our overall assessment programme has few gaps, it is still important to look specifically at the qualities of some of our specific assessments. In the next section, the programme of assessment of clinical skills in Med III will be evaluated, based on a set of twelve criteria developed as a self-evaluation instrument, to judge the quality of the programme (Sluijsmans and Struyven, 2014). While this does not cover all of our assessments, it serves as model for the evaluation a specific programme, and is likely to be generalizable to other parts of our programme.

Quality criteria for a self-evaluation of a programme of assessment.

A programme of assessment must combine several assessment activities to provide accurate judgments concerning the competence of the students. It must be robust and defensible (Timmerman and Dijkstra, 2017). As such, several new assessment tools like 360-degree evaluation, DOPS, mini-CEX, and simulation have been

implemented at our school. The adoption of new assessment methods was done to improve the educational model by integrating knowledge, skills and attitudes in multiple assessment modalities. It was also initiated to handle additional work place-based assessment. With the development and integration of these new assessments, discussions have centered on the quality of the scores and the inferences that one can make based on the scores. Besides the issue of *what* quality criteria should be used, a second important issue is *how* assessment quality should be determined (Baartman et al, 2011).

While criteria for good assessment is well defined and described in the literature, (Sluismans and Struyven, 2014) quality criteria for a good assessment programme are still evolving. Baartman (2008) validated 12 criteria for competence assessment programme with its two components, formative and summative. It is important to clarify that all methods included in the assessment programme must meet the 12 criteria and not each method alone. Hence, the programme of assessment must be evaluated as a whole, taking into account all the methods (Baartman et al, 2011). The assessment system of the LAUSOM is, as described above, very diverse and complementary. For the purpose of this study, and not to be exhaustive, the quality assurance evaluation is limited to the clinical skills assessment program of Med III. Clinical skills sessions have been integrated in our school, from the first week of Med I. This structure was based on the belief that clinical encounter and communications skills are as important as knowledge in medicine. Several OSCEs employing standardized patients are conducted during the preclinical years to assess the clinical performance of the students to ensure their readiness to encounter real patients at the hospital.

In Med III, the assessment of clinical skills is formative using several mini-CEX per year, and summative after each clerkship, using the clerkship clinical performance evaluation (CPE) and the OSCE twice per year. As described earlier, the CPE assesses several domains, mainly patient care and communication skills. It also covers the areas of professionalism, knowledge and procedural skills. The student is assessed by several examiners throughout the clerkship; at the end, he or she receives a grade and a written feedback for the performance observed during the rotation.

Quality assurance for the clinical skills assessment programme of Med III

In this section, the clinical skills programme of Med III will be evaluated using the validated criteria (Baartman et al, 2011). The aim is to assure that we are appropriately assessing our students and covering all the facets of the clinical assessment programme in Med III. To the extent that this process works, it will form the basis of the assessment programme evaluation for the rest of the curriculum.

The 12 criteria are represented in the wheel of competence; each criterion covers one facet of the program of assessment. Some of the quality criteria focus on the formative aspects, such as acceptability, authenticity, meaningfulness, cognitive complexity and self- assessment. Others focus more on the summative aspects such as reproducibility, fairness, and comparability (Baartman et al, 2011).

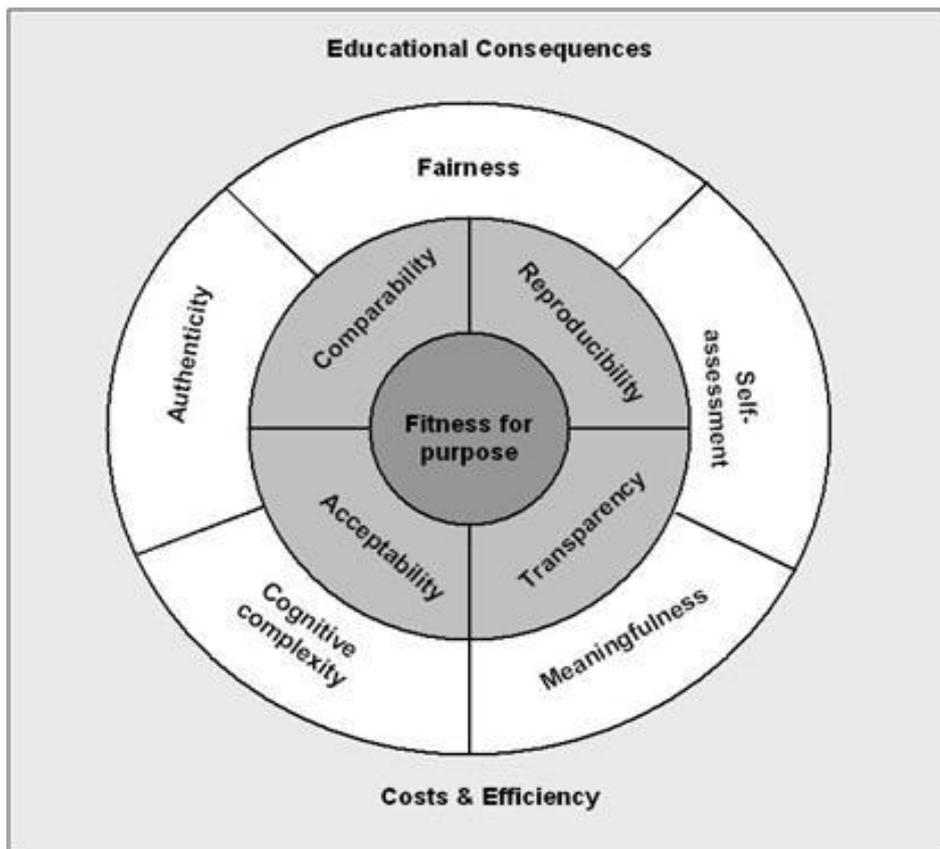


Figure 2 : Wheel of competency assessment.(Baartman et al, 2006)

Each of the criteria will be explained, elaborated and applied to the programme of assessment of the clinical skills in Med III. Some of the criteria can overlap; nevertheless, the aim is to have a general view of the programme for quality assurance, and to evaluate it for improvement.

Fitness for purpose is a basic quality criterion for programme of assessment. It must cover all educational goals including the three domains; knowledge, skills and attitudes. They should be assessed in an integrated way, with clear alignment with the curriculum (Baartman et al, 2011). In our context, the learning objectives of each clerkship in Med III are well defined and aligned with the teaching and assessment tools. The terminal clerkship objectives are published on blackboard, the electronic platform used for communication at SOM. (Appendix III)

Authenticity relates to the resemblance of the future workplace in terms of the assessment task, the environment, and the assessment criteria. It is one of the most important quality criteria and, for this purpose, we implemented the mini-CEX as a formative assessment of clinical skills. Here, the student is able to be assessed with a real patient in an authentic environment. This can be in a private clinic, a dispensary, a school or a hospital setting depending on the clinical rotation of the student. Another form of authentic assessment involves the use of standardized patients (SPs), laypeople trained to portray complaints of real patients as part of an OSCE. This allows us to assess the clinical performance of the student in a controlled environment (Boulet and McKinley, 2013). Our assessment programme incorporates different levels of authenticity that increase through the curriculum from Med I to Med IV (Harden and Lilley, 2018)

Cognitive complexity means that a programme of assessment should include a high level of cognitive skills, including thinking processes and clinical reasoning (Bartman et al, 2011). This criterion is met in our assessment programme of Med III in both summative and formative ways. For the mini-CEX, students collect the information from the history taking and physical examination of a real patient, evaluate and analyse the situation, and then propose an appropriate management plan. It is also represented in a summative way with the OSCE, where students must demonstrate their clinical reasoning, develop differential diagnoses and manage various patient conditions. Students are asked, for example, to identify three differential diagnoses, rank them from the most to the less likely, and provide a rationale for each one. This reflects real life situations and demands the cognitive skills needed to practice medicine. In parallel, cognitive complexity is also manifested at the end of each clerkship with the CPE, adopted to assess the clinical performance of the student

during a clerkship. Nevertheless, the assessment of clinical reasoning is also assessed throughout different stations of the OSCE in Med IV. This is done to assure that this cognitive skill is assessed singularly, and not confounded with other skills like history taking and physical examination.

Meaningfulness is an important criterion; it indicates that the program of assessment must have a significant value for all stakeholders involved. For the educators, the programme of assessment must tell a story about the performance and the evolution of the learner. As for the students, each assessment should be a learning experience by itself. We conducted a survey last year, to be continued in following years, to get more information about the best learning tool in Med III. We listed several tools; lectures, rounds, private clinics, mini-CEX, OSCE, morning report and MCQ exam. The results were unexpected. In the students' opinion, the most useful learning tools are the clinical round, followed by private clinics, mini-CEX, OSCE, morning report, lectures; the last being MCQs. This indicates that our Med III students consider the mini-CEX and OSCE to be good learning tools and far more effective than the traditional lectures. This clearly supports the meaningfulness of the programme of assessment of the clinical skills programme to the students. Another significant value of the assessment battery used in our clinical skills programme is the aggregation of several information sources related to the performance each student in a given skill area,. For example, communication skills performance is evaluated in formative and summative ways throughout the year by different examiners. It is assessed formatively in the mini-CEX of every rotation, with oral and written feedback from the attending physician. It is also assessed in a summative way through the OSCE, employing different stations with several examiners. As such, the performance and the progression of the learner is well monitored and poor performances can be identified

and discussed with the stakeholders to aid remediation efforts. This close follow up is done twice a year by the office of clinical affairs and the director of the OSCE. A report of the performance of students with weaknesses is issued for follow up. These processes highlight the meaningfulness of the assessment programme of clinical skills to our teachers as well as our learners.

Fitness for self-assessment is the criterion that stresses how a programme of assessment stimulates self-regulated learning, and motivates students to have a plan for improvement after receiving feedback (Baartman et al, 2011). In our context, this criterion comes directly after meaningfulness, because it is one important part of its follow up. Students periodically receive oral and written feedback in the mini-CEX; they discuss their performance with the examiner and plan for their improvement when needed. Afterward, the self-regulated learning depends mainly on the student and is not formally monitored unless there is an important gap noted by the assessor and forwarded to the office of clinical affairs. As for the OSCE, the process is more structured and additional information is collected from several stations for each performance domain. When the student shows unsatisfactory performance in one domain, he/she is asked to participate in a self-regulated learning process. This is done via different methods, as discussed and suggested by the office of clinical affairs. One of the methods can be increasing the number of mini-CEX observations in all clerkships. The student can practice his/her skills and receive more feedback. This process is well monitored to assure the improvement of the student throughout the year. Self-assessment is an important habit to be acquired for a lifelong learning process. It provides the learner information about his or her progression by relating products to learning objectives (van der Vleuten et al, 2017)

Fairness is a quality criterion that comprises several indicators related to students, examiners, and the assessment system. Learners should get a chance to demonstrate what they know through different types of assessment tasks. They have also to be able to rectify any mistake and to perceive fairness in the assessment system. As for the examiners, they should have a professional attitude and not be prejudiced in any circumstances. Finally, the programme of assessment has to be fair in all aspects and weights must be based on the importance of the assessment and the consequence of the results (Baartman et al, 2011). This criterion is partially covered in our medical school; the learners can demonstrate their performance in several settings and through different assessment tasks. Differences among students are also well accepted and encouraged. But fairness of the assessment programme of clinical skills is only expressed through a survey conducted anonymously after the OSCEs. Here, the summary results revealed that more than 85% of the students acknowledge that the exam, including the performance tasks, was fair. As for the other assessments, mini-CEX and CPE, we don't have any specific data and it is definitely an area for improvement in our system. On another note, fairness and professionalism of the assessors are considered important matters in our school and many decisions have been taken to avoid biased behaviour. For instance, an advisor is not allowed to be an examiner for his/her advisee in an OSCE station, and he/she cannot vote for any assessment decision related to his or her advisee.

The clinical skills assessment programme in our school has the three components, formative, summative and longitudinal with a close follow up to each student. Consequently, it covers all the facets of assessment, the assessment *for* learning, the assessment *of* learning and the assessment *as* learning. Furthermore all the decisions are directly proportional to the importance of the assessment as well as the

consequences of poor performance. Generally, the programme can be considered fair. However, from a quality improvement perspective, we can administer more surveys asking about the quality and perceived fairness of all of the assessments. Analysis of data related to raters is also crucial and will be conducted this year to quantify measurement error and improve reliability.

Acceptability for all stakeholders is a criterion that is considered essential in our school. For this purpose, a retreat was conducted last year to review our assessment programme for the clinical years. We needed to ensure that all domains are appropriately assessed. We had concerns about the assessment of professionalism and clinical reasoning. As results, two OSCEs have been implemented for Med IV, and the CPE forms have been modified to follow up on students, and assess each domain through detailed criteria. Students, administrators and teachers all took part in this retreat and they all agreed on the changes that were proposed.

Transparency is another basic criterion. All stakeholders have to understand the procedure and criteria of each assessment. Students in Med III have several meetings with the assistant dean of clinical affairs at the beginning of the year to explain the assessment system and the consequences associated with poor performance. They also have an orientation session the first day of each clerkship to discuss the learning objectives, assessment methods, as well as logistics and organisation of the rotation. The aim of this orientation is to make sure that all stakeholders understand the programme of assessment. The assessment system materials, including the CPE and the mini-CEX forms, are published on the electronic platform of the medical school to allow stakeholders to review them when needed. Therefore, students know when and how they will be assessed. They know when to expect formative and summative

assessments, and the consequences of poor performance. The assessment blueprint is another part of the transparency equation. It has been disseminated for the OSCE and will be completed for other assessments like local MCQ.

Comparability is related to reliability and standardisation. In our assessment programme, all the assessment tasks and conditions are comparable, as much as possible. In a competence-based educational system, comparability is difficult to achieve, especially if some of the assessments, like mini-CEX, are conducted with real patients. However, for formative assessment, the consequences are not as important. For the summative tests, the OSCE is well-standardised and the number of stations and assessors has been increased to yield reasonably precise estimates of ability. The most important contribution to reliability is sampling across different cases with multiple independent observations by different assessors (Boursicot et al, 2011). For this purpose, we have increased the number of encounters in the last two years. We currently have twelve stations per OSCE, and we conduct two OSCEs per year for Med III students. We also offer faculty development workshops regularly so that grading is consistent and equitable for all students. The CPE also requires multiple trained observers of multiple encounters to generate reliable ability estimates (Schuwirth and van der Vleuten, 2011). Comparability is an important but difficult criterion, and a lot of effort is expended in our assessment programme to achieve comparable assessments of students, both within assessments and over time.

Reproducibility of decisions is another criterion that ensures grading consistency and score reliability. It is also related to standardization and objectivity (Sluismans and Struyven, 2014). In our context, the same competency is assessed several times by several assessors in different settings. For example, history taking is assessed in a

formative way, at least seven times per year with different assessors, through the mini-CEX. Along with the summative tests, twelve stations of history taking are implemented in the OSCEs. Likewise, the CPE is administered seven times per year, using four to five assessors each time. Collectively, these assessments provide reproducible scores and pass/fail decisions. By using multiple assessments and multiple assessors, a reliable picture of a student's competence can be obtained (Sluismans and Struyven, 2014).

Educational consequences pertain to the effects of assessments on learning and on the curriculum as a whole. Assessments can have a huge influence on student behaviour. They should stimulate the desired learning processes, and positively influence teachers and students to engage in these learning processes (Baartman et al, 2011). In our medical school, following the results of the tests, the assessment committee meets and take the appropriate decisions. Students with weakness are asked to have a personal plan for improvement and are monitored for the remaining year. As for the teachers, and after the statistical analysis of the assessments, they are asked to review the content and psychometric properties of the test, (e.g., Cronbach alpha ,difficulty level and discrimination index) to ensure that the scores, and associated decisions, are defensible.

The final criterion, *Costs and efficiency*, relates to the feasibility of the programme of assessment. In our school, the assessment system is well supported by the dean and the administration. Although the programme is very expensive for a private school, and becoming more expensive (e.g., all SPs are remunerated and the number of the OSCEs has increased) there is no compromise on the quality of the assessments. The performance of the students on international examinations is very

satisfactory, and the majority of our graduates are able to continue their residency and their fellowship in the best programmes in the United States of America and Europe. Last year for example, 80% of the students who applied for the 2018 National Residency Matching Program were accepted.

A summary of quality assurance criteria and LAU SOM performance is presented in Table C.

RESULTS

Criterion	Achieved	Needs improvement
<i>Fitness for purpose</i>	The alignment of the learning objectives of the three domains with the teaching and assessment tools is clearly implemented and published.	To assure that all stakeholders are aware of the defined learning objectives in each domain. It can be done through a survey during the academic year.
<i>Authenticity</i>	The assessment programme is considered authentic because the mini-CEX and the CPE, as formative and summative assessments, are done with real patients in real settings.	To increase the number of mini- CEX per clerkship, in order to observe the students more often in a real setting.
<i>Cognitive complexity</i>	High level of cognitive skills are assessed in every assessment of the programme because the student has to analyse the collected information to elaborate differential diagnoses and management, in a formative way through the mini-CEX and summative way through the OSCE and CPE.	To implement several stations for clinical reasoning in Med IV OSCEs and assess it as an independent skill.

<p><i>Meaningfulness</i></p>	<p>The different tools of the programme of assessment of clinical skills are meaningful for the students, this has been demonstrated through a survey. It is also meaningful for the teachers because through this assessment programme, they are able to monitor the performance of the students.</p>	<p>A survey has to be conducted with the teachers and not only with the students, to assure the meaningfulness of the programme in a clear statement.</p>
<p><i>Fitness for self-assessment</i></p>	<p>Oral and written feedbacks are done through mini-CEX, in different rotations and the student is asked to have a self-improvement plan when needed. In the OSCE, the process is done more formally when unsatisfactory performance is noted. Subsequently, the student performance is monitored and different methods are offered for improvement. The formative and the summative assessments stimulate a self-regulated learning process through the feedback delivered in all contexts.</p>	<p>To give written feedback after OSCEs to all students and not only for unsatisfactory performance. This can help student to improve the borderline performance and to seek for excellence in all domains through a pertinent and a constructive feedback.</p>
<p><i>Fairness</i></p>	<p>Fairness is assured through the several formative, summative and longitudinal assessment tools. Fairness is well documented in the OSCE through a survey and weights of assessments are proportional to the importance of the assessment. Many decisions and faculty development have been conducted to assure the fairness and professionalism of the examiners.</p>	<p>More surveys must be conducted to detect the perception of fairness of the students toward other assessment tools used in the programme of assessment such as CPE, mini- CEX and toward the examiners.</p> <p>Psychometric analysis must be enhanced.</p>

<p><i>Acceptability</i></p>	<p>Last year a retreat has been conducted to evaluate the programme of assessment of the clinical years. All stakeholders were present, students, teachers and staff and they all agreed on the changes that have been implemented.</p>	<p>To evaluate appropriately the implemented changes with all stakeholders.</p>
<p><i>Transparency</i></p>	<p>Several meetings are conducted with the students at the beginning of the year to explain the assessment programme and its consequences. It is also repeated in the orientation day of each clerkship and published on blackboard.</p>	<p>A survey must be conducted for students and teachers to assure that our message is well received.</p>
<p><i>Comparability</i></p>	<p>With real patients and real settings, comparability is difficult to be completely achievable. In high stake exam (OSCE) it is done through standardization and reliability of the assessment (several stations and multiple assessors).</p>	<p>To conduct more and more faculty development to assure that the students are assessed appropriately in all the rotations with comparable teachers.</p>
<p><i>Reproducibility of decisions</i></p>	<p>To assure reliable decision, the same competence is assessed several times by several assessors in different settings.</p> <p>The reliability is also assured through the number of stations in the OSCEs (never less than twelve stations per OSCE).</p>	<p>Data analysis of the raters must be conducted: for the CPE assessors as well as for OSCEs to detect bias behaviour.</p>

<i>Educational consequences</i>	The assessment committee meet before and after the exam to take appropriate decisions in regard of the results and the analysis of each item. The assessment process is also discussed with its implication and each domain is monitored longitudinally throughout the year.	Psychometric analysis must be enhanced.
<i>Costs and efficiency</i>	The programme is well supported. Although it is expensive for a private school but the outcome is very satisfactory.	Research must be conduct to study if the increase cost in faculty development, number of assessors and number of OSCEs in the last years was cost effective.

Table C: results of quality assurance criteria and LAUSOM performance

DISCUSSION

The purpose of this particular investigation was to review the literature for assessment frameworks, compare and contrast them, choose one that was appropriate for our context, and apply it to evaluation of the programme of assessment at LAUSOM.

Our assessment programme was not implemented exclusively to assure that we are graduating competent physicians. The original purpose was to ensure that we are graduating reliable, self-regulated, motivated and professional physicians with a critical and innovative thinking. We needed a framework to cover the traditional knowledge as well as the different skills domains. Inspecting the literature, we found

a number of possible assessment frameworks. We searched for frameworks that were competency-based, and encompassed the three domains of knowledge, skills and attitudes. Then we judged the quality, feasibility and the applicability to the LAUSOM context. We found that Maastricht framework fits best to our assessment programme, at least from the panoply of frameworks that we looked at.

Based on that, we started evaluating our programme of assessment, studying dimension after dimension using the 72 guidelines of the Maastricht framework. Some of the guidelines were straightforward, other were not really applicable to our context. But the majority of the guidelines were appropriately covered and perfectly aligned with our curriculum through all its components.

We concluded that the programme of assessment of LAUSOM fits into the Maastricht framework. While some areas need improvement, there is considerable evidence for its quality. This result is likely due to the regular punctual evaluation and the presence of several experts in medical education in the school. Many changes were implemented throughout the years and for the first time, based on this study, we can conclude that our programme of assessment at the medical school, which includes many summative and formative aspects, is likely to yield competent graduates.

As for the gaps or parts that were not covered in our programme of assessment, they were mainly the research area. As new medical school, all the efforts of the faculty were to the implementation of the curriculum and the accommodation of an increasing number of students. We started with 23 students and doubled the number in five years. We now have 64 students. Research was not a priority although we knew its importance as a major step for improvement. We needed this kind of study to acknowledge that research is now essential for the quality assurance of our

programme. Steps have been taken to start several research studies in different assessment fields. The aim is to support our programme of assessment through research in several areas, including the simulation programme, the OSCE, and the mini-CEX. The effect of assessment on students is another gap identified by this study; it is an area that must be elaborated in the near future in our school. It can be done through a survey at the end of the year.

After identifying the 12 criteria of quality assurance related to the Maastricht framework, it was important to apply these to the clinical skills programme in Med III. The clinical skills programme was chosen because it covers the clinical performance of the students; the knowledge part is adequately assessed through local and international assessments such as the NBME exams. The results were also encouraging and several findings emerged.

First, surveys, including all stakeholders, are important because they can provide data that informs quality improvement efforts. They can also be directly or indirectly linked to research. Several surveys must be conducted in different areas to have a robust and defensible clinical skills programme of assessment, mainly to assure fairness and transparency. Second, faculty development is also important to increase comparability and fairness. This has already been done in some areas but its scope must be increased. Furthermore, to maintain quality, faculty development programmes must be offered at regular intervals. Third, several OSCE stations must be administered for clinical reasoning in Med IV, and perhaps starting in Med III, to ensure that we are covering appropriately the cognitive complexity required for independent practice (Baartman, 2008).

Finally, feedback is one of the most effective method to make assessments truly formative (van der Vleuten et al, 2017). Our system provides many opportunities for debriefing students. However, to be effective, feedback needs to have a well-defined structure regarding the content, the timing and the conditions (van der Vleuten et al, 2017). Increasing the number of mini-CEX in every rotation, and providing high-quality feedback, would be helpful because additional formative use of assessments is appropriate in our context. It should be noted, however, the increased use of any assessment method, especially those that demand raters and rely on targeted feedback, will increase the cost and complexity of the assessment programme.

A number of important conclusions emerged from this study and several lessons were learned. One of the lessons is related to the applicability of frameworks. Frameworks facilitate the comprehensive evaluation of programmes by defining the relevant domains and criteria. This allows for the identification of quality improvement areas. It can also help to create an overview of what is, and what is not, being measured (Dijkstra et al, 2010). Without a framework, it would be difficult to identify gaps. As such, any changes to the system may, or may not, be warranted.

Improvement can be driven by the identified gaps and requisite changes. However, changes need to be prioritized because some of them will require considerable resources (Timmerman and Dijkstra, 2017). Furthermore, it is important to develop a detailed design for each change and draw up an implementation plan (Gale and Bezuidenhout, 2015). Without this, it will be difficult to determine whether the changes have made an appreciable impact on the quality of the programme.

This study provided guidance concerning the evaluation of the assessment programme at LAUSOM via the Maastricht framework. A focused quality assurance investigation was also conducted, using the validated quality criteria of competence-based education, to guarantee that the clinical skills programme of Med III is valuable and appropriately implemented.

However, some limitations of this study must be acknowledge. One of the limitations related to the evaluation of Med III clinical skills programme and not the whole programme of clinical skills from Med I to Med IV. While the results are likely to generalize, one must still evaluate all assessments within the programme. This is being planned for the future. Another potential limitation is the generalizability of the results of this study to other medical school. Because the programme of assessment at LAUSOM is tailored to our context, the results may not generalizable to other medical schools.

Some significant challenges were encountered in conducting this study. These occurred primarily because evaluating a programme of assessment is a new field in medical education. In the literature, a large number of publications related to curriculum and assessment can be found, but programme of assessment is a new concept. More research is needed to help stakeholders understand the need for assessment frameworks, the utility of programmes of assessments, and the necessity to validate all assessment methods.

CONCLUSION

As recently established medical school, there was a clear need to evaluate our programme of assessment. This was done to ensure that we are graduating physicians who have the necessary knowledge, skills and attitudes to serve the patients for whom they will be responsible (Harden and Lilley,2018). By using the Maastricht Framework, we were able to critically reflect on our processes and evaluate the quality of our programme (Pearce et al, 2015). Through the identification of assessment gaps, the quality of our assessment programme, including the validity and reliability of the assessment scores and decisions, could be improved. While there is still work to be done, the framework evaluation provides a baseline with which to judge future quality improvement initiatives.

REFERENCES

- ACGME. (2010a). Accreditation council for graduate medical education: glossary of terms. Accreditation Council for Graduate Medical Education. Available from: http://www.acgme.org/acWebsite/about/ab_ACGMEglossary.pdf
- Baartman, L.K.J. (2008). *Assessing the assessment: Development and use of quality criteria for competence assessment programmes*. Dissertation, University Utrecht.
- Baartman, L. K. J., Bastiens, T.J., Kirschner, P.A., and Van der Vleuten, C. P. M, 2006. The wheel of competency assessment. Presenting quality criteria for Competency Assessment Programmes. *Studies in Educational Evaluation*, 32, pp153- 177.
- Baartman, L.K.J., Prins, F.J., Kirschner, P.A. and Van der Vleuten, C. P. M., (2011). Self-evaluation of assessment programs: A cross-case analysis. *Evaluation and program planning*, 34(3), pp. 206-216.
- Boulet, J.R. & McKinley, D.W. (2013). Criteria for good assessment. (Chapter 2). In McGaghie, W.C. (ed.). *International Best Practices for Evaluation in the Health Professions*. Radcliffe Publishing, London.
- Boursicot, K., Etheridge, L., Setna, Z., Sturrock, A., Ker, J., Smee, S. and Sambandam, E., (2011). Performance in assessment: Consensus statement and recommendations from the Ottawa conference. *Medical teacher*, 33(5), pp. 370-383.
- Dijkstra, J., Galbraith.R., Hodges,B., McAvoy, P., McCrorie, P., Southgate, L., Van der Vleuten, C., Wass ,V., and Schuwirth, L., 2012. Expert validation of fit-for-purpose guidelines for designing programmes of assessment. *BMC Medical Education* 12:20.
- Dijkstra, J., Van Der Vleuten, C. P. M and Schuwirth, L.W.T., 2010. A new framework for designing programmes of assessment. *Advances in Health Sciences Education*, 15(3), pp. 379-393.
- Dreyfus, S.E. and Dreyfus, H.L., 1980. *A Five-Stage Model of the Mental Activities Involved in Directed Skill Acquisition*. Defense Technical Information Center.
- Englander, R., et al. (2014). Core entrustable professional activities for entering residency: curriculum developers' guide. Retrieved June 3, 2014, from www.mededportal.com/ collaborative/resource/ 887.
- Frantz. E., and Kennedy. J., 2014. The Program Summary Tool: An Evaluation Framework for Public Health Program Success. *NACCHO Exchange*, 13(4), pp. 14.
- Frank JR, Snell L, Sherbino J, editors. *CanMEDS 2015 Physician Competency Framework*. Ottawa: Royal College of Physicians and Surgeons of Canada; 2015.

Gale, R., Bezuidenhout, J. (2015) Managing and leading change. *FAIMER- Keele Master's in Health Professions Education: Accreditation and Assessment*. Module 2, Unit 7. 3rd edition. FAIMER Centre for Distance Learning, CenMEDIC, London.

Goldie, J. (2006). AMEE Education Guide no. 29: Evaluating educational programmes. *Medical Teacher*, 28(3), pp. 210-224.

Harden,R., Liley,P.(2018) *The eight roles of the medical teachers* London: Elsevier

Khan, K.Z., Ramachandran, S., Gaunt, K. and Pushkar, P., 2013. The Objective Structured Clinical Examination (OSCE): AMEE Guide No. 81. Part I: An historical and theoretical perspective. *Medical Teacher*, 35(9), pp. e1446.

Lazarsfeld, P.F. and Rosenberg, M. 1955. *The Language of Social Research*. Glencoe, IL, Free Press.

Mehrens, W.A. and Lehmann, I.J. (1991). *Measurement and evaluation in education and psychology*. (3rd Edition.) New York: Holt, Rinehart and Winston.

Norcini, J., Anderson, B., Bollela, V., Burch, V., Costa, M.J., Duvivier, R., Galbraith, R., Hays, R., Kent, A., Perrott, V. and Roberts, T., 2011. Criteria for good assessment: Consensus statement and recommendations from the Ottawa 2010 Conference. *Medical Teacher*, 33(3), pp. 206-214.

Norcini,J. and Burch,V., (2007) Workplace-based assessment as an educational tool: AMEE Guide No. 31, *Medical Teacher*, 29:9-10, 855-871

Obe, R.E. and Hogard, E., (2016). *Programmatic Assessment: A Paradigm Shift in Medical Education*

Pangaro, L. and ten Cate, O., 2013. Frameworks for learner assessment in medicine: AMEE Guide No. 78. *Medical Teacher*, 35(6), pp. e1210.

Pearce, J., Edwards, D., Fraillon, J., Coates, H., Canny, B.J. and Wilkinson, D., (2015). The rationale for and use of assessment frameworks: improving assessment and reporting quality in medical education. *Perspectives on Medical Education*, 4(3), pp. 110-118.

Sluijsmans, D.M.A. and Struyven, K., (2014). Quality assurance in assessment: An introduction to this special issue. *Studies in Educational Evaluation*, 43, pp. 1-4.

Tillema, H., Leenknecht, M. and Segers, M., (2011). Assessing assessment quality: Criteria for quality assurance in design of (peer) assessment for learning – A review of research studies. *Studies in Educational Evaluation*, 37(1), pp. 25-34.

Timmerman, A. and Dijkstra, J., (2017). A practical approach to programmatic assessment design. *Advances in Health Sciences Education*, 22(5), pp. 1169-1182.

UY, J., Lizarondo, L. and Atlas, A., (2016). ASPIRE for quality: a new evidence-based tool to evaluate clinical service performance. *BMC research notes*, 9(1), pp. 306.

Vassar, M., Wheeler, D.L., Davison, M. and Franklin, J., 2010. Program Evaluation in Medical Education: An Overview of the Utilization-focused Approach. *Journal of Educational Evaluation for Health Professions*, 7(1), pp. 1.

Van der Vleuten, C P, Schuwirth, L.W., Driessen, E.W., Dijkstra, J., Tigelarr, D., Baartman, L.K. and Van Tartwijk, J., 2012. A model for programmatic assessment fit for purpose. *Medical teacher*, 34(3), pp. 205-214.

Van der Vleuten, C., Sluijsmans, D., Joosten-ten Brinke, D., (2017) *Competence-based Vocational and Professional Education*, Switzerland Springer International Publishing

Wass, V., Van Der Vleuten, C., Shatzer, J. and Jones, R., 2001. Assessment of clinical competence. *The Lancet*, 357(9260), pp. 945-949.

APPENDIX I

LAU School of Medicine Clerkship Clinical Performance Evaluation

Please complete the form using black or blue ink. Use the cross sign "x" when applicable. Mark "NA" for non-applicable if a judgment cannot be made clearly or if the area of competency was not assessed.

Student Name:

Date of

Evaluation:

Clerkship Site:

Evaluator:

Months spent in clerkship:

Please indicate the extent of contact you had with the medical student:
hours.

For each of the areas or competencies listed below, please check the appropriate level of ability.

KNOWLEDGE FOR PRACTICE			
1. FUND OF KNOWLEDGE – Demonstrates basic science and clinical knowledge and applies this knowledge to patient care.			
NA <input type="checkbox"/>			
Please indicate the basis on which you are evaluating the student. Check all that apply.			
Rounds <input type="checkbox"/>	Conferences <input type="checkbox"/>	Presentations <input type="checkbox"/>	Precepting on clinical cases <input type="checkbox"/>
Other _____			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstanding <input type="checkbox"/>
Often significant gaps in knowledge, limited understanding of pathophysiology, diagnosis or management, unable to correlate basic and clinical sciences to patient care, little evidence of seeking of reliable information	Inconsistently demonstrates substantial foundation in applied knowledge with frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually solid fund of basic and clinical science knowledge related to care of patient, usually reads about patient's condition, demonstrates an analytic approach to clinical situations, usually accesses information from established evidence and high-quality resources	Consistently applies basic and clinical science knowledge to care of patient, provides evidence-based data and uses an analytic approach to clinical conditions, seeks information from established evidence and high quality resources, contributes significantly to the knowledge of the health care team with whom he/she is working, grasps medical controversies
PATIENT CARE			
2. HISTORY TAKING – Demonstrates ability to take a complete and/or focused history.			
NA <input type="checkbox"/>			
Please indicate the basis on which you are evaluating the student.			
Observed history taking <input type="checkbox"/>	Student presentations <input type="checkbox"/>	Number of times _____	
Number of times _____			

Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often disorganized, frequent misses, inappropriate questions, poorly focused, out of sequence, inaccurate data	Inconsistently organized and complete, inconsistently gathers essential information and elicits significant cues, with frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually organized, logical and complete, focused with accurate present illness and past medical history, identifies major relevant components and new problems, elicits pertinent Review of Systems (ROS) both positive and negative, elicits pertinent psychosocial and personal history	Consistently organized, logical, complete, focused, accurate, consistently gathers essential information and elicits significant cues in present history, gathers complete information about past history and + and – ROS, psychosocial and personal history, reflects understanding of disease course and of the patient's circumstances
3. PHYSICAL EXAMINATION – Demonstrates ability to perform a complete/ or focused physical examination of the patient. NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Observed complete physical examination <input type="checkbox"/> Number of times ____ Observed focused physical examination <input type="checkbox"/> Number of times ____ Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often disorganized, incomplete or unreliable exam, missing major findings, inability to correlate physical exam with history, uncertainty of normal and abnormal findings, insensitive to patient comfort	Inconsistently organized and complete exam, inconsistently performs proper techniques/tests on physical exam tailored to clinical presentation, inconsistently identifies abnormal findings, with frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually organized, systematic exam, complete or focused as correlated with history, identifies major findings, recognizes normal and abnormal, usually conducts specific tests on physical exam tailored to clinical presentation, sensitive to patient	Consistently and efficiently performs organized physical examination either complete or focused as related to history, distinguishes normal from abnormal findings, elicits subtle findings and performs necessary tests on physical exam as related to clinical presentation, consistently sensitive to patients
4. CRITICAL THINKING /CLINICAL DECISION MAKING. NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Oral Presentations <input type="checkbox"/> Written notes <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to bring together history, physical exam and laboratory data, difficulty in interpreting data and findings, problems lists are inaccurate or incomplete, unable to generate a list of differential diagnoses	Inconsistently able to use various clinical findings and data sources to develop a differential diagnosis, inconsistently develops a comprehensive problem list, inconsistently interprets data and imaging studies to make decisions about diagnostic and	Usually able to synthesize various data sources, develop a comprehensive and meaningful list of differential diagnoses, interpret data collected from history taking and physical exam to make decisions about necessary investigations, interpret laboratory data	Consistently organizes various sources of data, synthesizes information, understands complex problems, develops a comprehensive and coherent list of differential diagnoses, interprets data collected from history taking and physical exam to make decisions about necessary investigations, interprets laboratory data and imaging studies to inform

adapted to patient's situation	therapeutic interventions and level of care, frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	and imaging studies to inform decisions about necessary interventions and level of care, problems lists are usually complete	decisions about necessary interventions and level of care, problems list are consistently complete
5. MANAGEMENT. NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Conferences <input type="checkbox"/> Presentations <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellently <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to provide informed decisions about diagnostic and therapeutic interventions, unable to prioritize management, unable to develop a management plan adapted to patient's clinical presentation, often fails to consider patient's perspective, often lacks sound judgment, unable to provide proper patient counseling	Inconsistently able to prioritize problems, develop a coherent management plan based on patient's problems and needs, frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually able to prioritize problems, develop a coherent plan for diagnosis and patient management, considers needs of patient, demonstrates sound judgment, organizes and prioritizes responsibility to provide safe and effective patient care, provides proper patient counseling	Consistently prioritizes problems, demonstrates sound judgment, develops a coherent plan, includes patient and team in decision making, anticipates future problems, counsels and educates patients properly, consistently provides appropriate role modeling
6. TECHNICAL SKILLS NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellently <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to complete the required technical tasks or fails to improve skills due to lack of manual dexterity or unwillingness to respond to sustained guidance and support	Inconsistently able to complete the required technical tasks or modestly able to improve skills, due to lack of manual dexterity	Usually able to complete the required technical tasks demonstrating adequate manual dexterity	Consistently able to complete the required technical tasks demonstrating exceptional manual dexterity
PRACTICE-BASED LEARNING AND IMPROVEMENT			
7. SELF REFLECTION AND RESPONSE TO FEEDBACK. NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Oral Presentations <input type="checkbox"/> Written notes <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellently <input type="checkbox"/> Outstandingly <input type="checkbox"/>

Often arrogant, antagonistic, fails to self-assess, blames others for failures, avoids taking responsibility, defensive to feedback, makes little effort to improve, often unaware of personal weaknesses, reluctant to accept feedback	Inconsistently demonstrates willingness to improve, inconsistently asks for feedback and acts accordingly, frequent fluctuation between “Below Expectations” and “Meets Expectations” performance, most importantly needs significant improvement before moving to a higher academic level	Usually accepts full responsibility for actions, self-assesses, requests and improves with feedback, works toward self-improvement, identifies gaps in self-performance and knowledge, usually implements new scientific knowledge for improvement of healthcare overall	Consistently accepts full responsibility for actions, self-assesses and recognizes strengths and weaknesses, seeks to improve performance consistently by setting clear improvement goals and through the identification and development of targeted learning activities, responds very positively to feedback and acts accordingly, self- directed independent learner, consistently implements new scientific knowledge for improvement of healthcare overall
--	---	---	--

INTERPERSONAL AND COMMUNICATION SKILLS

<p>8. ORAL COMMUNICATION SKILLS – Demonstrates ability to communicate effectively with patients, families and colleagues. NA <input type="checkbox"/></p> <p>Please indicate the basis on which you are evaluating the student. Check all that apply.</p> <p>Rounds <input type="checkbox"/> Conferences <input type="checkbox"/> Presentations <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other</p>			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellently <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to communicate with patient or health care team, inadequate listening skills, inadequate sensitivity to patients, judgmental, overuse of medical jargon understandable to patients, failure to develop rapport	Inconsistently able to communicate well and build good rapport with patients and families, inconsistently demonstrates good relationship with colleagues, frequent fluctuation between “Below Expectations” and “Meets Expectations” performance, most importantly needs significant improvement before moving to a higher academic level	Usually able to communicate effectively with patients and families using appropriate terminology, usually builds good rapport with healthcare teams, patients, and families, usually sensitive to patients and colleagues	Consistently empathetic, listening to patients, families and colleagues, excellent rapport with patients, families and teams, shows patient centered communication, provides patient education, takes initiative in communicating with patients and colleagues, demonstrates understanding about emotions in interpersonal interactions

<p>9. WRITTEN NOTES – Demonstrate ability to write history and physical examination, plans, progress note and discharge summary. NA <input type="checkbox"/></p> <p>Please indicate the basis on which you are evaluating the student. Check all that apply.</p> <p>Complete or focused history and physical <input type="checkbox"/> Number of occurrences ___ Progress notes <input type="checkbox"/> Number of times Written Presentations <input type="checkbox"/> Other _____</p>			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellently <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often incomplete, disorganized, tardy, unreliable, inaccurate, missing data, unrelated to problems, cursory notes	Inconsistently complete, organized, legible, comprehensive and timely documentation, frequent fluctuation between “Below Expectations” and “Meets Expectations” performance, most	Usually complete, organized, legible, comprehensive, timely, and accurate documentation, relating lab data to problems and describing patient progress	Consistently complete, organized, timely, legible, comprehensive, and accurate documentation, relating lab data to problems and describing patient progress thoroughly

	importantly needs significant improvement before moving to a higher academic level		
10. ORAL PRESENTATIONS – Demonstrate ability in patient presentations, conference presentations and formal student presentations. NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Conferences <input type="checkbox"/> Formal Student Presentations <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other _____			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often fails to present, is inaccurate, poorly organized, with little evidence of preparation, not geared to audience, poorly understood concepts	Inconsistently organized, accurate and clear presentations, frequent fluctuation between “Below Expectations” and “Meets Expectations” performance, most importantly needs significant improvement before moving to a higher academic level	Usually organized, accurate, clearly presented, provides basic information, relates clinical problems to basic and clinical evidence, researched	Consistently organized, accurate, concise and clearly presented, well thought out, well researched, refers to evidence-based medicine, demonstrates understanding of disease and management processes
PROFESSIONALISM			
11. PROFESSIONAL CONDUCT AND BEHAVIOR NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Conferences <input type="checkbox"/> Presentations <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unreliable, absent, late, fails to complete assignments, fails to accept responsibility, lacks motivation, records incomplete, disinterested, fails to maintain confidentiality and ethical behavior, handles stress poorly, lacks respect for patients and their privacy, families, and teams, lacks compassion, is not responsive to patient needs, fails to demonstrate sensitivity to patients’ beliefs, and to diversity, fails to comply with school policies	Inconsistently reliable, available, motivated and timely, inconsistently accepts responsibility and demonstrates respect toward patient and families, inconsistent compassion towards patients and sensitivity to their needs and beliefs, frequent fluctuation between “Below Expectations” and “Meets Expectations” performance, most importantly needs significant improvement before moving to a higher academic level	Usually reliable, present, on time, ethical, motivated, respects patients and their privacy, families and teams, maintains confidentiality, accepts responsibility and completes assigned tasks, works well with teams, follows through on tasks, usually responds to patients’ needs, respects diversity, avoids discrimination, and complies with school policies	Consistently reliable, active team member, respects patients’ privacy and beliefs, families and teams, ethical, maintains confidentiality, highly self-motivated, able to function independently but does to overstep bounds, follows through on tasks, flexible, consistently accepts responsibility, compassionate, maintains integrity, responds to patients’ needs, respects diversity, and always comply with school policies

SYSTEMS-BASED PRACTICE

12. AWARENESS OF THE LARGER CONTEXT OF HEALTHCARE NA <input type="checkbox"/>			
Please indicate the basis on which you are evaluating the student. Check all that apply.			
Rounds <input type="checkbox"/>	Conferences <input type="checkbox"/> cases <input type="checkbox"/>	Presentations <input type="checkbox"/> Other	Precepting on clinical
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to coordinate patient care across specialties, to incorporate cost considerations in ordering lab tests and considering management plans, unable to advocate for quality patient care	Inconsistently works effectively in different healthcare settings, inconsistently able to coordinate patient care across specialties, to incorporate cost considerations in ordering lab tests and considering management plans, inconsistently advocates for quality patient care, with frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually works effectively in different healthcare settings, able to coordinate patient care across specialties, to incorporate cost considerations in ordering lab tests and considering management plans, usually advocates for quality patient care	Consistently works effectively in different healthcare settings, able to coordinate patient care across specialties, to incorporate cost considerations in ordering lab tests and considering management plans, consistently advocates for quality patient care, participates in identifying system errors and suggesting solutions, and performs administrative tasks and responsibilities commensurate with role (getting laboratory tests and culture results, preparing summary notes, etc.)

INTERPROFESSIONAL COLLABORATION

13. TEAMWORK ABILITY FOR EFFECTIVE PATIENT AND POPULATION-CENTERED CARE NA <input type="checkbox"/>			
Please indicate the basis on which you are evaluating the student. Check all that apply.			
Rounds <input type="checkbox"/>	Conferences <input type="checkbox"/> cases <input type="checkbox"/>	Presentations <input type="checkbox"/> Other	Precepting on clinical
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to work and communicate with other healthcare professionals in a responsive manner to maintain health, respect and dignity, unable to use mutual knowledge to address healthcare needs, and unable to participate in different team roles	Inconsistently able to work and communicate with other healthcare professionals in a responsive manner to maintain health, respect and dignity, inconsistently able to use mutual knowledge to address healthcare needs, inconsistently able to participate in different team roles, frequent fluctuation between "Below Expectations" and "Meets Expectations" performance, most importantly needs significant improvement before moving to a higher academic level	Usually able to work and communicate effectively with other healthcare professionals in a responsive manner to maintain health, respect and dignity, usually able to use mutual knowledge to address healthcare needs, usually able to participate in different team roles to establish and enhance interprofessional teams at the service of safe, efficient and equitable healthcare	Consistently able to work and communicate effectively with other healthcare professionals in a responsive manner to maintain health, respect and dignity, consistently able to use mutual knowledge to address healthcare needs, consistently able to participate in different team roles to establish and enhance interprofessional teams at the service of safe, efficient and equitable healthcare

PERSONAL AND PROFESSIONAL DEVELOPMENT			
14. PERSONAL AND PROFESSIONAL GROWTH TOWARD FUTURE PHYSICIANSHIP NA <input type="checkbox"/> Please indicate the basis on which you are evaluating the student. Check all that apply. Rounds <input type="checkbox"/> Conferences <input type="checkbox"/> Presentations <input type="checkbox"/> Precepting on clinical cases <input type="checkbox"/> Other			
Below Expectations <input type="checkbox"/>	Needs Significant Improvement <input type="checkbox"/>	Meets Expectations Passably <input type="checkbox"/> Sufficiently <input type="checkbox"/>	Exceeds Expectations Excellent <input type="checkbox"/> Outstandingly <input type="checkbox"/>
Often unable to ask for help in response to personal weaknesses, unable to cope with stress and manage conflicts, unable to demonstrate flexibility and maturity in adjusting to change, and to demonstrate trustworthiness and self-confidence that comfort patients and families	Inconsistently able to ask for help in response to personal weaknesses, inconsistently able to cope with stress and manage conflicts, inconsistently able to demonstrate flexibility and maturity in adjusting to change, and to demonstrate trustworthiness and self-confidence that comfort patients and families	Usually able to ask for help in response to personal weaknesses, able to cope with stress and manage conflicts, usually demonstrates flexibility and maturity in adjusting to change, and to demonstrate trustworthiness and self-confidence that comfort patients and families	Consistently able to ask for help in response to personal weaknesses, able to cope with stress and manage conflicts, usually demonstrates flexibility and maturity in adjusting to change, and to demonstrate trustworthiness and self-confidence that comfort patients and families, recognizes uncertainties in medicine and seeks appropriate resources to deal with ambiguities

Please provide an overall score over 10 on the general performance of the student during this clerkship using the below scale definition: _____/10
 0-5: Very poor performance 6: Fair, needs significant improvement 7: Pass, meets expectations 8-9: Excellent 10: Outstanding

How many hours/days of absence from clerkship duties did the student have to your knowledge? _____

Please provide below comments for the student (these comments are for formative purposes):
 Comments for the student:

Please provide below comments about student's performance based on your observation. These comments are used for summative purposes and will be sent to the student:
 Comments:

Please use the space below to send any private comment to the Office of Clinical Affairs:

Evaluator's signature:

APPENDIX II

Addendum: Guidelines for Designing Programmes of Assessment

Table of content

Introduction

GENERAL GUIDELINES

- I Decisions (and their consequences) should be proportionate to the quality of the information on which they are based.
- II Every decision in the design process should be underpinned preferably supported by scientific evidence or evidence of best practice. If evidence is unavailable to support the choices made when designing the programme of assessment, the decisions should be identified as high priority for research.
- III Specific expertise should be available (or sought) to perform the activities in the programme of assessment.

PURPOSE OF THE PROGRAMME

- A1 One principal purpose of the assessment programme should be formulated.
- A2 Long-term and short-term purposes should be formulated. But the number of purposes should be limited.
- A3 An overarching structure which projects the domain onto the assessment programme should be constructed.

INFRASTRUCTURE

- A4 Opportunities as well as restrictions for the assessment programme should be identified at an early stage and taken into account in the design process.
- A5 Design decisions should be checked against consequences for the infrastructure. If necessary compromises should be made, either adjusting the purpose(s) of the assessment programme or adapting the infrastructure.

STAKEHOLDERS

- A6 Stakeholders of the assessment programme should be identified and a rationale provided for including the expertise of different stakeholders (or not) and the specific role(s) which they should fulfil.
- A7 The level at which various stakeholders participate in the design process should be based on the purpose of the programme as well as the needs of the stakeholders themselves.

PROGRAMME IN ACTION

Collecting Information

- B1 When selecting an assessment component for the programme, the extent to which it contributes to the purpose(s) of the assessment programme should be the guiding principle.
- B2 When selecting an assessment (component or combination), consideration of the content (stimulus) should take precedence over the response format.
- B3 The assessment should sample the intended cognitive, behavioral or affective processes at the intended level.
- B4 The information collected should be sufficiently informative (enough detail) to contribute to the purpose of the assessment programme.
- B5 The assessment should be able to provide sufficient information to reach the desired level of certainty about the contingent action.
- B6 The effect of the instruments on assessee behavior should be taken into account.
- B7 The relation between different assessment components should be taken into account
- B8 The overt and covert costs of the assessment components should be taken into account and compared to alternatives.
- B9 Assessment approaches that work well in a specific context (setting) should first be re-evaluated before use in another context (setting) before implementation.
- B10 A programme of assessment should deal with error and bias in the collection of information. Error (random) is unpredictable and should be reduced by sampling (strategies). Bias (Systematic) should be analyzed and its influence should be reduced by appropriate measures.
- B11 Any performance categorization system should be as simple as possible.
- B12 When administering an assessment (component), the conditions (time, place, etc.) and the tasks (difficulty, complexity, authenticity, etc) should support the purpose of the specific assessment component.
- B13 When scheduling assessment, the planning should support instruction and provide sufficient opportunity for learning.

Combining Information

- B14 Combination of the information obtained by different assessment components should be justified based on meaningful entities either defined by purpose, content, or data patterns.
- B15 The measurement level of the information should not be changed.
- B16 The consequences of combining information obtained by different assessment components, for all stakeholders, should be checked.

Valuing Information

- B17 The amount and quality of information on which a decision is based should be in proportion to the stakes.
- B18 A rationale should be provided for the standard setting procedures.

Taking Action

- B19 Consequences should be proportionally and conceptually related to the purpose of the assessment and justification for the consequences should be provided.
- B20 The accessibility of information (feedback) to stakeholders involved should be defined.
- B21 Information should be provided optimally in relation to the purpose of the assessment to the relevant stakeholders.

SUPPORTING THE PROGRAMME

Construction Support

- C1 Appropriate central governance of the programme of assessment should be in place to align different assessment components and activities.
- C2 Assessment development should be supported by quality review to optimize the current situation (Programme in Action), appropriate to the importance of the assessment.
- C3 The current assessment (Programme in Action) should be routinely monitored on quality criteria.
- C4 Support for constructing the assessment components requires domain expertise and assessment expertise.
- C5 Support tasks should be well-defined and responsibilities should lie with the right persons.

Political and Legal Support

- C6 The higher the stakes, the more robust the procedures should be.
- C7 Procedures should be made transparent to all stakeholders.
- C8 Acceptance of the programme should be widely sought.
- C9 Protocols and procedures should be in place to support appeal and second opinion.
- C10 A body of appeal should be in place
- C11 Safety net procedures should be in place to protect both assessor and assessee.
- C12 Protocols should be in place to check (the programme in action) on proportionality of actions taken and carefulness of assessment activities.

DOCUMENTING THE PROGRAMME

Rules and Regulations (R&R)

- D1 Rules and regulations should be documented.
- D2 Rules and regulations should support the purposes of the programme of assessment.

- D3 The impact of rules and regulations should be checked against managerial, educational, and legal consequences.
- D4 In drawing up rules and regulations one should be pragmatic and concise, to keep them manageable and avoid complexity.
- D5 R&R should be based on routine practices and not on incidents or occasional problems.
- D6 There should be an organizational body in place to uphold the rules and regulations and take decisions in unforeseen circumstances.

Learning Environment

- D7 The environment or context in which the assessment programme has to function should be described.
- D8 The relation between educational system and assessment programme should be specified.

Domain Mapping

- D9 A domain map should be the optimal representation of the domain in the programme of assessment.
- D10 A domain map should not be too detailed.
- D11 Starting point for a domain map should be the domain or content and not the assessment component.
- D12 A domain map should be a dynamic tool, and as a result should be revised periodically.

IMPROVING THE PROGRAMME

R&D

- E1 A regular and recurrent process of evaluation and improvement should be in place, closing the feedback loop.
- E2 If there is uncertainty about the evaluation, more information about the programme should be collected.
- E3 In developing the programme (re-design) again improvements should be supported by scientific evidence or evidence of best practice.

Change Management

- E4 Momentum for change has to be seized or has to be created by providing the necessary priority or external pressure.
- E5 Underlying needs of stakeholders should be made explicit.
- E6 Sufficient expertise about change management and about the local context should be sought.
- E7 Faculty should be supported to cope with the change by providing adequate training

JUSTIFYING THE PROGRAMME

Effectiveness

Scientific Research

- F1 Before the programme of assessment is designed, evidence should to be reviewed.
- F2 New initiatives (developments) should be accompanied by evaluation, preferably scientific research.

External Review

- F3 The programme of assessment should be reviewed periodically by a panel of experts.
- F4 Benchmarking against similar assessment programmes (or institutes with similar purposes) should be conducted to judge the quality of the programme.

Efficiency: *cost-effectiveness*

- F5 In order to be able to justify the resources used for the assessment programme, all costs (in terms of resources) should be made explicit.
- F6 A cost-benefit analysis should be made regularly in light of the purposes of the programme. In the long term, a proactive approach to search for more resource-efficient alternatives should be adopted.

Acceptability: *political-legal justification*

- F7 Open and transparent governance of the assessment programme should be in place and can be held accountable
- F8 In order to establish a defensible programme of assessment there should be one vision (on assessment) communicated to external parties.
- F9 The assessment programme should take into account superseding legal frameworks.
- F10 Confidentiality and security of information should be guaranteed at an appropriate level.

Appendix III

Primary care : Clerkship Terminal Objectives (CTO)

By the end of the primary care clerkship, each third-year medical student will:

- 1) Take a detailed and accurate history and perform a complete physical examination of a patient presenting with an acute medical illness, in an ambulatory setting **(Psychomotor – Adapting) EPAs: 1, 7, 10 - Mini-Cex and Clinical observation for formative. CPE (GR) and OSCE for summative**
- 2) Take a detailed and accurate history and perform a complete physical examination of a patient having a chronic disease, in an ambulatory setting **(Psychomotor – Adapting) EPAs: 1, 7 - Mini-Cex and Clinical observation for formative. GR and OSCE for summative**
- 3) Describe and discuss pathophysiological processes of common diseases in Primary care (listed in paragraph 7- E) with faculty physicians at least once **(Knowledge – Understand) EPAs:2 – MCQ**
- 4) Appraise patients' condition with elaboration on differential diagnosis, work-up and management, in an ambulatory setting **(Knowledge – Analyze) EPAs:2,3,7 - Mini-Cex and Clinical observation for formative. GR and OSCE for summative**
- 5) Discuss and apply the principles of health promotion and disease prevention strategies: screening, risk identification **(Knowledge – Application) EPAs:3,7- Mini-cex and Clinical observation for formative. GR and OSCE for summative**
- 6) Perform a focused history taking and physical examination in medical emergency situations, in a simulated setting in the presence of other healthcare providers **(Psychomotor – Practicing) EPAs:1,2,9,10 – Formative assessment during the simulation session**
- 7) Demonstrate skills in oral presentation of a clinical encounter and two topics from the list in paragraph 7-E **(Psychomotor – Adapting) EPAs:1,5,6 – CPE**
- 8) Demonstrate skills in discussing /counselling patients, and families, in an ambulatory setting, with faculty physicians at least once **(Affective –Valuing) EPAs:1,3,4 -Mini- Cex and OSCE – (Summative)**
- 9) Explain indications, select, and interpret clinical tests and imaging in an ambulatory setting and recognize social limitations **(Knowledge – Application) EPAs:3,4 – MCQ, OSCE and clinical observation**

The last objectives can be general:

- 10) Demonstrate professional behavior, establish an effective student-patient relationship and communicate appropriately with family and healthcare providers

(Affective– Organization) EPAs: 9 – Mini- Cex as formative and CPE and OSCE as summative

- 11) Demonstrate confidence without arrogance, and does so even when needing to obtain further information or assistance **(Affective –Valuing) EPAs:9 – Mini-Cex as formative and CPE and OSCE as summative**

Appendix IV

Student handbook

The student handbook is the official document on policies, procedures, and resources of the LAU School of Medicine (SOM). It is important that each student becomes familiar with its content. The LAU School of Medicine reserves the right to change policies, procedures, programs and other matters without notice, when deemed necessary.

I. MISSION & VISION

The LAU School of Medicine's mission is to educate and train a new physician, one superbly trained in the art and science of medicine and who believes deeply that a physician is, above all, a merciful healer.

Vision of a "New Physician"

While Lebanese, regional, and global needs and opportunities, and the University's Strategic Plan, all support a promising vision for the new medical school at LAU, the *truly inspiring drive for such a school is the opportunity to educate and train a unique new medical graduate*. The abiding character of our School will be determined by the *kind* of physician it will graduate. Indeed, the Gilbert and Rose-Marie Chagoury School of Medicine at LAU is being conceived and designed to create a new physician, one who is superbly trained in the skills of 21st century medicine, but who believes deeply that a physician is, above all, a merciful healer.

The integrated curriculum we have embraced, with its reliance on small group, self-directed, patient-based learning and its emphasis on the patient, rather than the disease, will develop the depth of character and the insight into human nature required of the physician we aim to graduate. To better prepare students for this training, we include pre-medical requirements in philosophy, history, literature, religious studies, music and art.

We are also developing curricular requirements for competencies in areas in which doctors today find themselves significantly challenged. The first is "Money". The intrusion of 'money' into the medical profession remains a major challenge for most doctors. Unfortunately, mixing business with medicine has too often detracted from the status of the profession and, more ominously, its mission. At LAU, the role of money in the practice of medicine will be addressed during medical training. In collaboration with the LAU School of Business, curricular offerings addressing aspects of finance and business which impact on the medical profession will be required of LAU medical students.

In collaboration with the LAU School of Pharmacy, the medical school will also require of its graduates to be well versed in, self-confident, and ethically transparent in their professional interactions with the pharmaceutical industry, and with emerging global therapeutic and healing trends and technologies.

A third area of emphasis will be the fostering of skills aimed at preparing students to meet the *"changing science and practice of medicine as life long learners."* Self improvement and critical thinking are crucial for this process, and are also deeply incorporated in the School's curriculum.

You can find more information on the Mission and Vision of the School of Medicine on the School's website at <http://medicine.lau.edu.lb/about/mission/>

II. THE CURRICULUM

A. Overview of the Curriculum

Over the past decades, medical schools have been faced with a variety of challenges that have led to dramatic changes in medical education. Medical schools around the world have moved from the traditional lecture-based, discipline-oriented curriculum, and in which basic medical sciences and clinical disciplines are taught in succession and total separation, to a modern curriculum that integrates basic and clinical sciences. These challenges occurred as a result of changes in patients' expectations, healthcare delivery, medical knowledge, doctors' workload, and students' requirements. Consequently, medical schools have introduced new learning situations and new methods of assessment.

The Lebanese American University School of Medicine is proud to be the first in Lebanon to adopt a modern curriculum that is outcome-based, robust, and dynamic with integration of basic and clinical sciences. A fundamental goal of our curriculum is to equip the students with the skills and attitudes required to become independent life-long learners, problem solvers and critical thinkers. With the exponential growth in medical knowledge, it becomes vital to focus on teaching students "how to learn", rather than loading them with a huge body of information. Students will have early clinical exposure from MED I with horizontal and vertical integration of basic and clinical sciences which will help consolidate information and clinical skills simultaneously.

Other features of our program is community based learning, promotion of research and evidence-based practice, and special emphasis on communication skills, team work, attitudes, ethics and professionalism.

Med I and Med II comprise nine system modules (see curriculum Timeline) starting with 13 weeks of Foundations of Medicine. The curriculum of each module will be delivered as four themes:

1. Basic and Clinical Science Theme (Anatomy, Histology, Pathology, Physiology, Biochemistry, Microbiology, Clinical Sciences, Pharmacology, Genetics)
2. Clinical Skills Theme
3. Professional Development and Behavioral Theme
4. Population Health and Social Medicine Theme

New learning modalities will be utilized, such as simulators and simulation labs, virtual teaching, small-group teaching, peer-assisted teaching, problem-based classes, and computer and internet-assisted learning. Meanwhile, lectures and bedside teaching retain a place. Students will be provided with Study Guide for each module that has all the important needed information, including learning objectives, themes, and measures of assessments.

Med III and IV correspond to clinical clerkships in healthcare facilities, mainly the Lebanese American University Medical Center-Rizk Hospital (LAU Medical Center - RH). In Medicine Year III, students will rotate in seven core clerkships, while in Year IV, they will have a more flexible schedule with elective and selective rotations. Integration of basic and clinical sciences will be ensured through common class activities on a weekly basis. At the end of the clinical years, students will be able to perform with proficiency and demonstrate mastery of core competencies, which constitute the cornerstone of the clinical curriculum. These include:

- The physician as a scientist
- The physician as a communicator
- The physician as a care giver
- The physician as an advocate
- The physician as a professional

Teaching during the clinical years will depend on patient encounters and interaction with the healthcare team. Small and large group teaching, case discussions, rounds, tutorials, problem-based learning, practice on simulation models, bed-side teaching, outpatient clinics, journal clubs, in addition to other teaching activities will be offered to students during their clinical rotations.

B. Curriculum Timeline 2017-2018

YEAR I				
Foundations of Medicine	Hematology & Immunology	Endocrinology & Reproductive Medicine	Nephrology	Pulmonary
YEAR II				
Gastrointestinal	Cardiovascular	Musculoskeletal & Dermatology / Anatomy	Neurosciences & Psychiatry	
YEAR III				
<u>Core clerkships</u>				
Ob/Gyn: Obstetrics/Gynecology – Psy: Psychiatry – PC: Primary Care – Neur: Neurology				

Longitudinal spread



YEAR IV



Anesth: Anesthesiology – Path: Pathology –ICU: Intensive Care Unit – ER: Emergency Medicine – ENT: Otolaryngology – Oph: Ophthalmology.



C. United States Medical Licensing Examination (USMLE)

Students are strongly encouraged to take Step 1 of the USMLE, although performance on this exam will not affect promotion. The School provides throughout Med I and Med II regular USMLE-type practice exam questions.

For more information on USMLE, refer to the National Board of Medical Examiners (NBME) website at <http://www.nbme.org/>

D. Year-Long Research Project

As a requirement of the practicum for the Population Health and Social Medicine theme, medical students, working in small groups under the guidance of a research mentor, shall complete a year-long supervised research project. The year-long project will span over the first and second year. It aims primarily at enhancing and developing the research capabilities of medical students. It will also provide students with applied research field experience in the community, and an opportunity to utilize concepts learned during the first year classroom-based curriculum.

E. Assessment

An integrated curriculum requires an integrated approach to assessment. Students will be assessed not only for knowledge and skills but also for attitude. Assessment of student performance will vary depending on the academic level of the student.

Med I and II:

Achievements will be assessed using both summative and formative forms of assessment. The summative assessment is meant to grade students at the end of a module and at the end of the year to determine promotion. In the formative process, assessment is undertaken in order to intervene, with intention to improve. Results are assessed and used to judge progress, and areas of weakness are discussed with a plan for improvement. New examination formats will be used: the Objective Structured Clinical Examination (OSCE), the Objective Structured Practical Examination (OSPE) which test performance and competence in a wide diversity of settings and for certain skills. Students will have the chance to become familiar with these new examination formats before they are used to award grades. These testing formats are used in addition to the traditional Multiple Choice Questions (MCQs) and Multiple Extended Questions (MEQs).

Continuous evaluation of students, teachers, and the process of teaching is another feature of our curriculum. A feedback session, between students and small group facilitators will take place at the end of the PBL session every week. In addition, a wrap-up session with feedback on the week's teaching activities including strengths, weaknesses, and suggestions for improvement, will be offered during and at the end of every module for all students.

Overall evaluation of teachers and curriculum by students is mandatory and is prerequisite for releasing exam grades.

It is important to know that assessment in the new curriculum will be integrating the developing knowledge and skills delivered through the four themes and aligned with the learning objectives. Final grades are based on exam results, as well as participation and class work (Refer to School of Medicine's Academic policies).

Med III and IV:

The assessment of student performance in the clinical years has 3 main characteristics: first, it is competency-based, including testing outside the "real" clinical environment and within the natural clinical setting. Second, the assessment system depends on multiple sources for feedback and tests longitudinally for ongoing development of competencies, and third, it includes both formative and summative types of evaluation.

Several assessment tools will be used to determine the level of student performance, provide feedback (formative), and to attribute a grade or a judgment for the observed and tested level of performance. These tools include multiple choice questions, OSCE, global rating, 360 degree student evaluation, mini-CEX and portfolio. The combination of various tests and input from independent raters allows a better evaluation of clinical performance.

Evaluation of the clinical teacher, the clerkship program and courses is tied to the stated objectives and goals. The main aim of this evaluation is to promote continuous improvement to the program and the learning environment, and to guide faculty development. Various valid tools will be used to ascertain that multi-faceted

dimensions in the program are considered, such as both the formal and hidden curriculum. These tools include student evaluation of clerkships, clerkship directors and teachers. Other measures of the quality of the teaching program will correspond to future performance of students in residency programs and in International examinations.

III SCHOOL OF MEDICINE ACADEMIC POLICIES, RULES & PROCEDURES

A. GRADING SYSTEM & PROMOTION:

1. MED I and MED II

Grading System in an Integrated Curriculum: The integrated nature of our curriculum, and our emphasis on continuous assessment as a means for continuous self-improvement, required that we develop a grading system which serves the mission of the school while providing students and external evaluating bodies with a clear and fair evaluation of student performance. This system is described below; its principal underlying objective is to assure that students achieve satisfactory performance in all disciplines/themes and modules required for that year, whilst providing students with maximal chances for improvement and remedial action where needed.

a. GRADE CATEGORIES:

- The minimum numerical passing grade is 60% of the exam grade.
- **F:** (FAIL) grade corresponds to a numerical grade below 60% of the exam grade.
- **P:** (PASS) grade is granted to students who score a minimum of 60% of the exam grade and who do not qualify for higher grades (see below).
- **G:** (GOOD) grade is granted to student's performance that satisfies all of the following criteria:
 - o Passing numerical grade.
 - o Performance that is at least equal to the raw score that corresponds to the top 25 % of the class.
- **H:** (HONOR) grade is granted to student's performance that satisfies all of the following criteria:
 - o Passing numerical grade.
 - o Performance that is at least equal to the raw score that corresponds to the top 12 % of the class.
- **I:** (INCOMPLETE) grade is attributed if verified circumstances have prevented completion of any assigned exam. The incomplete exam has to be remediated

and the “I” grade replaced by either a “P” (a maximum grade of 60) or an “F” grade within the same academic year.

- **W:** (WITHDRAWAL) grade is attributed to students who withdraw from the program after requesting a leave of absence. LAU criteria for readmission after a leave will apply to this category (<http://students.lau.edu.lb/registration/returnees.php>)
- **DHL:** (DEANS HONOR LIST) is granted at the end of the academic year to the top 10 % of the class based on the Final Year Grade.

b. EVALUATION, GRADING AND DISCIPLINES PERFORMANCE

Modules Grade (MED I & MED II)

The final grade of a module consists of:

- 90% Multiple Choice Questions (MCQs) including Mini-Essays Questions (MEQs)
- 10% PBL Evaluation (Problem Based Learning)

Satisfactory performance on the PBL is mandatory for passing a module

Disciplines Performance (MED I & MED II)

Performance in disciplines is based on exams' results as well as class attendance, participation and assigned work (tutorial, labs, presentations, etc.).

Progress of students' performance will be discussed with the students on a regular basis throughout the academic year.

Satisfactory performance in disciplines corresponds to a Final Passing grade in that discipline.

Objective Structured Clinical Examination (OSCEs) (MED I & MED II)

OSCE evaluates progression of the acquisition of Clinical Skills and may cover any material given in previous modules.

MED I:

The OSCE Pass cut off point during Med I is 60% of the OSCE grade.

During Med I, there will be a total of 3 OSCEs.

OSCE 1: emphasizes Foundations of Medicine (given by the end of the Foundations of Medicine Module)

OSCE 2: emphasizes both Hematology/Immunology and Endocrinology/Reproductive Modules

OSCE 3: emphasizes both the Nephrology and Pulmonary Modules

MED II:

The OSCE Pass cut off point during Med II is **70%** of the OSCE grade.

During Med II, there will be a total of 4 OSCEs.

OSCE 1: emphasizes the Gastrointestinal Module

OSCE 2: emphasizes both the Cardiology and the Musculoskeletal/Dermatology Modules

OSCE 3: emphasizes the Neurosciences/Psychiatry Module

End of Year II OSCE: It is given at the end of Med II Academic Year. It includes all modules during both Med I and Med II.

END OF YEAR EXAM (EYE) for MED II

The EYE is an IFOM exam that consists of MCQs and MEQs covering all modules and disciplines during Med I and Med II.

FINAL YEAR GRADE for Med I

The Final Year Grade consists of the average grade on all modules (80%) weighted by module length and OSCEs (20% -OSCE 1, OSCE 2, OSCE 3).

FINAL YEAR GRADE for Med II

The Final Year Grade consists of the average grade on all modules (70%) weighted by module length, the EYE (20%) and OSCEs (10%- OSCE 1, OSCE 2, OSCE 3 and End of Year II OSCE)

c. CONDITIONS FOR PROMOTION

Conditions for promotion from MED I to MED II:

- A passing grade on all modules at the end of MED I academic year
- A passing Final Year I grade
- Satisfactory performance in all disciplines and themes.
- Satisfactory completion of the Year Long Project Requirements for Med I.
- Compliance with the Medical Student Code of Conduct is a key element in overall evaluation

Conditions for promotion from MED II to MED III:

- A passing grade on all modules at the end of MED II academic year
- A passing Final Year II grade
- Satisfactory performance in all disciplines and themes.
- Satisfactory completion of the Year Long Project
- Satisfactory performance on the End of Year II OSCE
- Compliance with the Medical Student Code of Conduct is a key element in overall evaluation.

d. FAILING TO MEET CONDITIONS FOR PROMOTION

Failing Modules (MED I & MED II)

1. A student with a Fail grade (≥ 58 and < 60) in any module will be offered an oral exam within 2 weeks after grades are issued.
 - Passing the oral exam will result in a 60 grade.
 - Failing the oral exam will lead to failing the module. (refer to number 2).
2. Failing a module (≤ 57) during the academic year will result in a resit exam. The resit exam will be given at the end of the Academic Year. Resit after module can only be given when there are extraordinary circumstances. Passing the resit exam will be graded a maximum of 60% regardless of the student's performance.
3. Failing 1 or 2 modules during the academic year will result in resit-exams in those modules. The resit exams will be given at the end of the Academic Year
4. Failing 3 or more modules during the academic year will result in repeating the year: Students who fail 3 or more modules are not entitled for resit exams.
5. Failing any module's resit exam will result in repeating the year (even if passed the Final Year Grade). ie. Passing all modules is mandatory for promotion

Failing the Final Year Grade (MED I and Med II)

The resit grade will be used for computing the Final Module grade and Final Year Grade.

Failing the Final Year Grade will result in repeating the year.

Failing the End of Year II OSCE:

Failing the End of Year II OSCE may result in remedial action and/or repeating Med II as determined by the Student Promotion Committee.

Unsatisfactory performance in Disciplines

Unsatisfactory performance in one or more disciplines will require remedial action to be determined by the discipline's tutor and approved by the Student Promotion Committee.

Unsatisfactory Completion of the Year Long Project

Unsatisfactory Completion of the Year Long Project will require remedial action to be determined by the coordinator and approved by the Student Promotion Committee

Unsatisfactory performance in remedial actions will be reviewed by the Student Promotion Committee and may result in failing the year

Non-compliance with the Medical Student Code of Conduct will result in disciplinary sanctions and the student may not be promoted to the next Academic Year.

Disciplinary sanctions will depend on the severity of the violation/non-compliance with the Medical Student Code of Conduct.

Failing an academic Year

Students may repeat any year only once and should graduate within a maximum enrolment of 6 years in the Medical School.

Students repeating an academic year are required to attend and pass all modules during that academic year.

e. RANKING OF STUDENTS

Ranking of MED I Students

The ranking of Med I students is based on the Final Year I grade. The Final Year I Grade consists of:

- the average grade of all modules (80%) weighted by module length
- OSCEs (20%). (OSCE 1 /OSCE 2/ OSCE 3 during Med I)

Ranking of MED II Students

The ranking of Med II students is based on the Final Year II grade. The Final Year II

Grade consists of:

- the average grade of all modules (70%) weighted by module length
- the End of Year Exam Grade (EYE) (20%) and
- OSCEs (10%).(OSCE 1 , OSCE 2, OSCE 3 and End of Year II OSCE)

The Student Evaluation and Promotion Committee evaluates periodically students' performance and makes recommendations regarding promotion, dismissal and re-examinations.

2. MED III and MED IV

a. GRADE CATEGORIES

Evaluation of student's performance and achievement of a competence in the clinical years will be judged using letter grades that will be attributed using the following criteria:

- Criterion-referenced system will be used for the identification of a passing academic performance, and norm-referenced system for a further description of a passing performance using class percentiles.
- The minimum passing score for numerically graded examinations is 70% of the exam grade.
- Non-numerically graded performance will be assessed using checklists and rubrics with descriptors (such as procedures and elective clerkships). Only Fail/Pass grades will be attributed to the level of performance.
- **F:** (FAIL) grade will be attributed to a numerical grade below 70% and to unsatisfactory completion of an elective clerkship or a procedure (Refer to paragraphs b.i.e) and c.i.b) for description of satisfactory completion).
- **P:** (PASS) grade is granted to students who score a minimum of 70% of the exam grade and who do not qualify for higher grades (see below). A passing

grade will also be attributed to satisfactory completion of an elective clerkship and a procedure.

- **G:** (GOOD) grade is granted to student's performance that satisfies all of the following criteria:
 - o Passing numerical grade.
 - o Performance that corresponds to the top 25% of the class.

- **H:** (HONOR) grade is granted to student's performance that satisfies all of the following criteria:
 - o Passing numerical grade.
 - o Performance that corresponds to the top 12% of the class.
 - o Performance that is meritorious during the clinical experience; this applies only if the student demonstrates compliance with policies and code of conduct.

- **I:** (INCOMPLETE) grade is attributed if verified circumstances have prevented completion of any assigned work. The incomplete work has to be remediated and the "I" grade replaced by either a "P" or an "F" grade within the same academic year.

- **W:** (WITHDRAWAL) grade is attributed to students who withdraw from the program after requesting a leave of absence. LAU criteria for readmission after a leave will apply to this category
[\(<http://students.lau.edu.lb/registration/returnees.php>\)](http://students.lau.edu.lb/registration/returnees.php)

- **DHL:** (DEANS HONOR LIST) is granted at the end of the academic year to the top 10% of the class based on the Final Year Grade.

b. Medicine Year III:

i. EVALUATION, GRADING AND CLERKSHIP PERFORMANCE

a) Grading a clerkship:

Assessment of students' performance on clerkships will be based on various tools that have been used during the rotations. Generally, final clerkship grade will be determined separately for each clerkship and will be a composite of the following grades:

- The MCQs' grade for the corresponding clerkship that will represent 25 to 35% of the final clerkship grade depending on clerkship guidelines.
- OSCE's grade for the corresponding clerkship that will represent 25 to 35% of the final clerkship grade depending on clerkship guidelines.

- Global Ratings' grade for the corresponding clerkship that will represent 30 to 50% of the final clerkship grade depending on clerkship guidelines.

The mini-CEX and 360 degree assessments will be used as formative tools and no grades or weights will be attached to them. The MCQs examinations will be NBME-based, offered twice a year and attributed 70% of the MCQ clerkship grade, and locally developed, offered every eight weeks and attributed 30% of the MCQ clerkship grade.

b) Grading longitudinal themes:

Performance on longitudinal themes delivered during year III such as medical ethics, healthcare management, financing and ethics, social medicine, multidisciplinary cases, and critical reading of the literature will be tested using MCQs examination and potentially extended questions, either as a separate exam at the end of the academic year, or at the middle and end of the year. A passing grade is necessary for satisfactory completion of the course and for graduation.

c) Grading the Portfolio:

The portfolio is a formative tool used to collate assessment information from various sources. It includes a reflective part and a record of achievement. The portfolio will be completed by the student throughout the academic Year III and will be evaluated against a checklist. This checklist includes criteria that assess for structure, completeness, professional development, and level of self-reflection.

d) Grading Continuity Experience Program:

Performance on the continuity experience clerkship (CEC) will be tested progressively at each visit and at completion (in Med IV) using the Global Rating form including items on general and experience-specific competencies such as student skills in developing a patient record. Case write-ups may be used as well for grading. However, grading the CEC is completed in Med IV since the clerkship extends over 18 months spanning the third and fourth clinical years.

e) Grading a Procedure:

A procedure is graded as satisfactorily or unsatisfactorily completed based on a checklist that includes all required steps to perform successfully the procedure. Checklists are available in the Guide to Procedural Skills and are adapted to each procedure. Satisfactory completion of a procedure requires that the student performs skillfully all mandatory steps and most of the remaining steps as described under each procedure.

f) The Year Grade:

The final year III grade corresponds to the sum of clerkships' grades (weighted to their corresponding duration) representing 90% of the total year grade, and the exam testing for performance on longitudinal themes representing 10% of the total year grade.

g) Monitoring Competencies:

Students' performance on the stated competencies (CanMEDS roles) will be assessed longitudinally throughout Med III using the aligned tools listed in the table. Any noted failure (or incompetence) to achieve the desired competence (or its elements) will be directly reported to the student and his/her advisor, and discussed in the Student Promotion Board meetings. Achieving competencies is mandatory for promotion.

h) Decision on and remediation of failed clinical work or examination

i. Failing a Clerkship:

The final grade of a clerkship will be determined when all components are available for grading. Passing a clerkship requires that the student receives a passing grade on the Global Rating assessment and a passing final clerkship grade. Failing any of these requirements will normally lead to repeating the clerkship (Refer to paragraph *i* for allowed number of clerkships to be repeated). However, cases with marginal clinical performance (Global Rating or final clerkship grade between 65 and 69%) will be discussed at the end of the academic year by the Student Promotion Board. Other assessment grades cannot compensate for a failing grade on the Global Rating. Repeating a clerkship will be offered once, immediately after the end of the third academic year, thus delaying entry to Med IV by at least one clerkship duration. A repeated clerkship will be evaluated at least by a Global Rating, an end-of-clerkship MCQs examination, and a mini-OSCE. Persistent failure on Global Rating and/or a persistent failing final clerkship grade will lead to repeating the year.

Passing the Global Rating assessment and the clerkship but failing MCQs examination and/or OSCE for that clerkship may lead to remedial action that will be decided by the Student Promotion Board.

Failing other clerkship components, such as a Multisource (360°) assessment and mini-CEX examination will require that the student shows improvement in his/her performance on that test in the following clerkships. Any persistent failure will lead to a remedial action to be determined by the Student Promotion Board.

ii. Failing longitudinal examination:

Failing examination testing for longitudinal themes may lead to a remedial action that will be determined by the course director and approved by the Student Promotion Board. Remedial action may be offered during the fourth academic year. A passing grade on these themes is mandatory for graduation.

iii. Incomplete Portfolio:

Incomplete portfolio does not affect promotion to Med IV but may delay graduation if it is not completed on time. Students can complete their reflective part during Med IV.

iv. Unsatisfactory completion of procedural skills:

Unsatisfactory completion of required procedures normally leads to repeating failed procedures in the fourth year until satisfactory completion is attained and requirements fulfilled. A satisfactory completion is required for graduation and is not mandatory for promotion.

v. Failing the year grade:

Failing the final year grade will normally lead to repeating the year. However, a passing grade on all clerkships, together with a failing final year grade (because of failed longitudinal examination) may result in a resit MCQs examination in the longitudinal theme. Recurrent failure will lead to repeating the year.

vi. Failing to achieve competence:

Students need to demonstrate competence in the stated CanMEDS roles. Competence is defined using multiple assessment tools that test for the desired competency as presented in the table. Competence is assessed longitudinally with the availability of assessment data. For example, “*physician as scientist*” is assessed using the MCQs examinations grades and the ‘fund of knowledge’ task grade of the Global Rating. Results are discussed in the Student Promotion Board and decisions made after deliberation among participants. Failing to achieve competence in a CanMEDS role will lead to remedial actions that are determined by the Student Promotion Board.

i) Promotion:

The Student Promotion Board decides on promotion from Med III to Med IV. Normally, promotion requires that the student:

- receives a Passing Final Year III grade,
- receives a Passing grade on all clerkships and their corresponding Global Rating evaluations,
- achieves competence in the stated CanMEDS roles, and
- demonstrates compliance with policies and code of conduct.

A failing Final Year III grade will normally lead to repeating the year. A failing Global Rating evaluation and/or final clerkship grade on one eight-weeks clerkship will lead to repeating the clerkship unless decided otherwise by the Student Promotion Board at the end of the academic year, especially for marginal performances. A failing Global Rating evaluation and/or a final clerkship grade on one or two four-weeks clerkship(s) will lead to repeating the clerkship(s) unless decided otherwise by the Student Promotion Board at the end of the academic year, especially for marginal performances. Under these circumstances, the student does not need to repeat the year; instead, entry to Med IV will be delayed by a maximum of two months if the student passes the repeated clerkships. Passing *all* clerkships is mandatory for promotion. Failing more than two four-weeks clerkships will lead to repeating the year. Failing one eight-weeks clerkship and one four-weeks clerkship will lead to repeating the year.

A clerkship can be repeated only once. A second failure will lead to repeating the year. Compliance with policies and student code of conduct is mandatory for promotion. Any behavior questioning student's suitability for the practice of safe and effective medicine will be reported to the Office of Clinical Affairs, which will then refer the case to the Dean's Office and Student Promotion Board for review. Failing to achieve competence is presented under section v. above.

II.B. Medicine Year IV:

a. Grading a Mandatory Clerkship:

Assessment of students' performance in clerkships will be conducted using various tools that include Global Rating, MCQs examinations, OSPEs, mini-CEX, and 360 degree evaluation, depending on individual clerkship guidelines. Generally, the clerkship grade will be determined using mostly the Global Rating. Some clerkships will include other assessment tools for evaluation of student performance. Individual clerkship grading system will be presented in each clerkship guide. The final clerkship grade will be determined separately for each clerkship and will include one or more of the following tools:

- Global Rating: representing the highest percentage of a final clerkship grade
- MCQs
- OSPE

Final clerkship grade will be determined when all test components are completed, at the end of each clerkship.

b. Grading an Elective Clerkship:

Elective Clerkships can be completed at intra-mural or extra-mural sites. Evaluation of an elective clerkship will be performed using the school Global Rating form for intra-mural electives, and the site-specific forms for extra-mural electives. The school form may be used as well by the extra-mural site. No numerical grades will be attributed to these activities.

Satisfactory completion of an elective clerkship requires that the student completes all assigned activities and receives a passing score/grade, according to the checklist/rubric adopted by the training site.

c. Grading the Continuity Experience Clerkship:

The CEC will be tested progressively at each visit and at completion (in Med IV) using a Global Rating form that includes items on general and experience-specific tasks, such as student skills in developing a patient record. Case write-ups may be used as well for grading. Trained faculty will complete clerkship grading upon completion of all requirements.

d. The end-of-year examination:

A MCQs end-of-year examination will be offered at the end of the academic year IV. The exam questions will cover material delivered in all Year IV clerkships and will be NBME-based. Another local test may be offered either at the end of the academic year or throughout the year. In the case of dual exams (both NBME and local), the NBME-based exam will be attributed a weight of 70% and the local exam(s) a weight of 30%.

e. The Year IV Grade:

The final year IV grade will correspond to the sum of clerkship grades (weighted to their corresponding duration, and including the continuity experience clerkship) representing 70% of the total year grade and the MCQs examination(s) representing 30% of the total year grade.

Procedural skills will be evaluated as satisfactory or unsatisfactory using the checklists available for each procedure.

f. Monitoring Competencies:

Students' performance on the stated competencies (CanMEDS roles) will be assessed longitudinally throughout Med IV using the aligned tools listed in the table. Any noted failure (or incompetence) to achieve the desired competence (or its elements) will be directly reported to the student and his/her advisor, and discussed in the Student Promotion Board meetings. Achieving competencies is mandatory for graduation.

g. Decision on and Remediation of failed clinical work or examination:

i. Failing a Mandatory Clerkship:

The final grade of a clerkship will be determined when all components are available for grading. Passing a clerkship requires that the student receives a passing grade on the Global Rating evaluation and a passing final clerkship grade. Failing any of these requirements will normally lead to, either repeating the clerkship, or completing a remedial work, as decided by the Student Promotion Board. Other assessment tools grades cannot compensate for a failing grade on the Global Rating evaluation. Repeating a clerkship will be offered once, immediately after the end of the fourth academic year, thus delaying graduation by at least one clerkship duration. Persistently failing the Global Rating and/or the final clerkship grade will lead to repeating the year.

Passing other assessment tests is not mandatory for passing a clerkship or for graduation, and does not normally lead to remedial action unless stated otherwise in the clerkship guide or decided otherwise by the Student Promotion Board. However, student performance on various tests will be continuously monitored and repetitive failure on the same test type may lead to remedial work.

A student may repeat only two four-weeks (or their equivalent) Med IV clerkships of any type (core, selective or elective). Failure in more than two four-weeks (or their equivalent) clerkships will normally lead to repeating the year.

ii. Failing an elective clerkship:

Failing an elective clerkship requires that the student repeat the clerkship (with the corresponding number of weeks), normally in the same department and in the place decided by the Student Promotion Board. Normally, a repeated elective is offered intra-murally. Repetitive failure leads to repeating the year. Failing the equivalent of more than eight weeks in elective rotations will normally lead to repeating the year as stated in paragraph ***g.i.***

iii. Failing the Continuity Experience Clerkship:

Failing the CEC will normally delay graduation until satisfactory completion is attained. Passing the clerkship is mandatory for successful completion of Med IV, and hence for graduation.

iv. Failing the end-of-year examination:

Failing the end-of-year MCQs examination (being composite or single grade) but passing the final year grade (which is a combination of clerkship grades and MCQs examination) will not normally result in a remedial action unless decided otherwise by the Student Promotion Board.

v. Failing remedial work:

Failing remedial work will result in delaying graduation until satisfactory completion of this remedial is achieved.

vi. Failing Procedural Skills:

Failure to complete satisfactorily required procedures will lead to delaying graduation until satisfactory completion is achieved.

vii. Failing the Final Year IV Grade:

Failing the final year grade will normally lead to repeating the year. However, a passing grade on all major clerkships and a satisfactory completion of elective clerkships, together with a failing final year grade, either because of failed MCQs testing or of failed CEC, may result in a resit MCQs examination or in a CEC remedial, respectively. Recurrent failure will lead to repeating the year.

viii. Failing to achieve competence:

Students need to demonstrate competence in the stated CanMEDS roles. Competence is defined using multiple assessment tools that test for the desired competency as presented in the table. Competence is assessed longitudinally with the availability of assessment data. For example, “*physician as scientist*” is assessed using the MCQs examinations grades and the ‘fund of knowledge’ task grade of the Global Rating. Results are discussed in the Student Promotion Board and decisions made after deliberation among participants. Failing to achieve competence in a CanMEDS role will lead to remedial actions that are determined by the Student Promotion Board.

h. Successful completion of year four:

For a successful completion of Medicine year IV, a student must:

- receive a Passing Final Year IV grade,
- receive a Passing grade on major clerkships,
- demonstrate satisfactory completion of elective clerkships,
- receive a Passing grade on Continuity Experience Program,
- demonstrate competence in the stated CanMEDS roles,
- demonstrate satisfactory completion of all assigned remedial work,
- demonstrate satisfactory completion of all required procedures for clinical years

- (DOPS), and
- demonstrate compliance with policies and code of conduct, and

i. Graduation Policies:

In order to be eligible for Graduation, a student must:

- Pass all medicine years within the respected time limit set for the MD program at LAU,
- demonstrate satisfactory completion of all assigned remedial work,
- demonstrate compliance with policies and code of conduct, and
- obtain clearance for graduation from the Library, Registrar's office, Athletics, Department, Dorms and Clinical Facilities.

B. DURATION OF THE MD PROGRAM

Students will not be allowed to spend more than 6 years at LAU School of Medicine from matriculation to graduation. This time will not include approved Leave of Absence. If timely completion of the MD degree requirements is in jeopardy, the Student Promotion Board will meet and request a plan from the student with a timeline to complete these requirements. If the student does not meet this time limit, he/she may not be granted the MD degree.

C. EXAMINATION POLICIES

1-Absences from examinations:

If a student is unable to sit for the exam, the Office of Medical Education (Med I and Med II) or the Office of Clinical Affairs (Med III and Med IV) must be contacted as soon as possible and not later than 8:30 am on the day of the exam. The student is required to document the reason for his/her absence and request authorization to postpone taking the exam and reschedule it to a later date.

In case of illness, the student should go to LAU Medical Center – RH Emergency Department (ER) and should send the medical report to OME. The report must include a statement that clearly denotes that the severity of the illness is such that the student was physically unable to take the exam on the given date.

Other personal emergencies such as car accidents, car problems, family emergencies... will be handled on a case by case basis and require documentation as well.

Valid absence from the exam will result in an **I** grade. (refer to page:13)

Unjustified absence from an exam will result in an **F** grade.

A student will not be allowed into the exam if he/she arrives 10 minutes after the start of the exam. Further policies will be circulated in due time during clinical years.

2-Examination rules & regulations

Students are expected to abide by the LAU Student Code of Conduct in addition to the below School of Medicine rules & regulations during examinations (paper-based, on-line examinations and OSCE):

- 1- All personal items including cell phones, purses, smart watches and calculators are not allowed in the examination area and should be placed in the locker prior to entry to the Examination area.
- 2- Scratch papers, pencils and scientific calculators will be made available to students in the Examination area. After the exam the scratch papers and pencils should be placed in the boxes provided and/or returned to the proctor.
- 3- Students should follow the exam seating plan unless allowed by the proctor in special conditions.
- 4- Students are recommended to arrive 15 minutes prior to the start of the exam.
- 5- Students arriving more than 10 minutes after the start of the exam will not be allowed to take the exam.
- 6- Talking during the exam or leaving the examination area without permission is not allowed.
- 7- Any suspicious behavior and/or cheating will **NOT** be tolerated.
- 8- Reproduction and distribution of the examination material is strictly prohibited and will result serious disciplinary action.
- 9- MCQ exam results will be released within a maximum of 3 weeks.

Any student caught cheating and/or violating the examination policies will be subject to disciplinary action.

3- Objective Structured Clinical Examination (OSCE) - Student Instruction and Information

1- The OSCEs are required clinical examinations and therefore all requirements in the Code of Professional Behavior will be enforced. Students must not discuss standardized cases (paper, simulated patient or real patient) with other students at any time before, during, or after taking an OSCE.

2- Professional attire including white coat and LAU ID badge is required. No flip-flops, shorts, tank tops or revealing clothing will be allowed. As with any patient care experiences, hair must be secured back to avoid handling. Refrain from using rings and long earrings; i.e keep jewelry to a minimum.

3- Students must bring their own stethoscopes, oto-ophthalmoscopes, penlights, and all required equipment to the examinations. Students who do not bring their required equipment may still take the exam, but loaner equipment will not be provided. Students must also wear a **watch**, as there are no clocks in the rooms.

4- Paper will be provided inside the exam rooms for taking patient notes. Students are not allowed to remove any exam material including the note paper from the test site. All patient notepapers with the student name written at the top will be collected and shredded. Any exam paper taken by a student out of the exam room will be considered a violation of the Code of Professional Behavior.

5- No notes, study material, reference material or personal scratch paper will be allowed inside the patient exam rooms. Backpacks, purses, satchels, and briefcases will not be allowed inside the patient exam rooms or the post-encounter rooms and will need to be left outside the rooms, in the hallway outside the Simulation Center.

6- Mechanical and digital devices including but not limited to, cell phones, pagers, PDAs, calculators, recording or filming devices, radios, and 2-way communication devices are not allowed in the examination rooms during testing.

7- Talking with classmates is not allowed in the testing hallway or in the post-encounter rooms. No gum, food, candy or beverages are allowed in the testing area.

Any action considered irregular behavior by the proctoring staff will be reported. The Clinical Skills Coordinator reserves the right to remove students who exhibit disruptive behavior.

4- Examination Review:

MCQ Exams:

- Performance in MCQ exams is usually discussed with advisors.
- As seen appropriate, an MCQ review session will be held by the coordinator for the class.
- Direct access to MCQ exams by the student is not allowed.
- Direct feedback by the advisor is a regular part of the process.
- Feedback for the failing OSCE students is usually given after the grades are released.