Confirmed at the Faculty of Odontology Council
Protocol No 25-20/21 of 28 May 2021

DESCRIPTION OF LSMU PRE-CLINICAL AND CLINICAL PRACTICE WORKS OF THE INTEGRATED ODONTOLOGY STUDY PROGRAMME

The goal of the practice works

The basis of odontology studies consists of three key components: theoretical studies, preclinical and clinical studies (Figure 1). The aim of the internship is to develop the student's behaviour and skills based on basic knowledge of odontology as a medicine, as well as psychomotor skills in biomedicine, behaviour, ethics, clinical odontology and information management, so that the student acquires competencies. In preclinical practice work, the student begins to form practical work skills for clinical work. This provides an opportunity to acquire motor and procedural skills that cannot be learned in any other way. The instruments and odontology equipment used in pre-clinical practice are identical to those used in clinical work with patients. By modelling clinical situations, the student's professionalism is developed, the foundations of safe and effective clinical practice are formed, and the importance of preventive measures is emphasised. Pre-clinical practice works are student centred, however, they provide a foundation for real clinical situations and shape the student’s attitude for patient centred prevention, diagnostics and treatment methods in clinical practical work. Students already have accumulated theoretical knowledge in lectures and seminars, so they can apply and deepen them by performing pre-clinical and clinical practice tasks, thus acquiring new manual skills and competencies necessary for odontological practice.

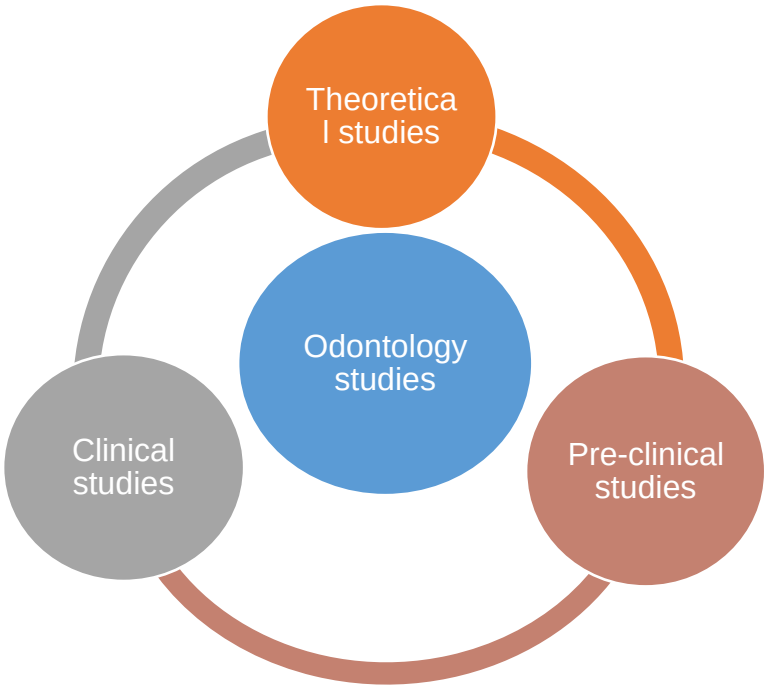

Fig.1 Key components of odontology studies

Preparation for practical work and their process

Practice works are carried out in the bases of profile clinics of the Faculty of Dentistry, LSMU, MA, adapted for this purpose. During the first session, the lecturer acquaints the student with the organisation of practical work, requirements and internal rules valid at a certain base.

In preparation for the practical work, the student must:

1. to get acquainted with and follow the internal rules of procedure applied in the bases of profile clinics of the Faculty of Dentistry, MA, LSMU;
2. to take care of the individual work equipment required for pre-clinical and clinical practice work in accordance with the requirements of a certain clinical base of the Faculty of Dentistry, MA, LSMU;
3. ensure they have neat and appropriate clothing;
4. leave personal effects and outer clothing not required for work in designated areas;
5. to repeat theoretical knowledge related to work flow, safety, ethics, expected examination, treatment and prevention of the patient or clinical situation;
6. to repeat the requirements for filling in the patient's documentation;
7. Prior to clinical practice, ensure patient registration and smooth access to LSMU profile clinics.

During the first session or during the previous practice works, the instructor indicates the tasks for future practice tasks. With this in mind, the student must repeat or, if necessary, expand the available theoretical knowledge necessary to perform the intended practical tasks. The purpose of the internship, the competencies to be acquired, the study and assessment methodologies, and the information indicating what students need to prepare in addition for self-study are indicated in the virtual learning environment (VLE).

At the beginning of other practical works, the lecturer discusses with the students the plan of the practical work for that day, tasks, and the course of their implementation; students can clarify the uncertainties of theoretical knowledge, the course of planned procedures or technical nuances. If a student does not have sufficient skills or performs a certain practical task for the first time, the lecturer can initially demonstrate it themselves, with the student observing or assisting. Students are then encouraged to work independently as a team, with the lecturer intervening in the workflow only when necessary.

If some of the students involved in the practice do not directly perform the practice tasks (for example, due to the lack of patients, the limited number of works spaces, etc.), they assist the colleagues doing the practice tasks or monitor their work. In such instances, the lecturer is advised to involve the observing or assisting students in the process, drawing their attention to the technical features of the practical task, theoretical substantiation or possible improvements or performance errors.

After completing the tasks provided in the practice work, the student arranges his / her workplace and fills in the necessary documentation in accordance with the requirements of the base. At the end of the practice work, the lecturer discusses with the students the issues raised in the process, the quality of the tasks, taking into account the recommendations for deepening practical and theoretical knowledge, and evaluates the student's practical work.

Acquired competencies

The competency-based study model seeks to develop four key areas of competence that a student must acquire upon completion of odontology studies: professionalism, safe and effective clinical practice, patient-centred treatment, and odontology in society. These competencies, in turn, are divided into several categories of competencies established in the description of odontology studies.

Taking into account the study results (competencies) required to acquire, the following principles are applied to the organisation and teaching of practice work (Figure 2):

1. professionalism;
2. patient centred;
3. holistic approach;
4. clear definition of study results;
5. links with public health and prevention.

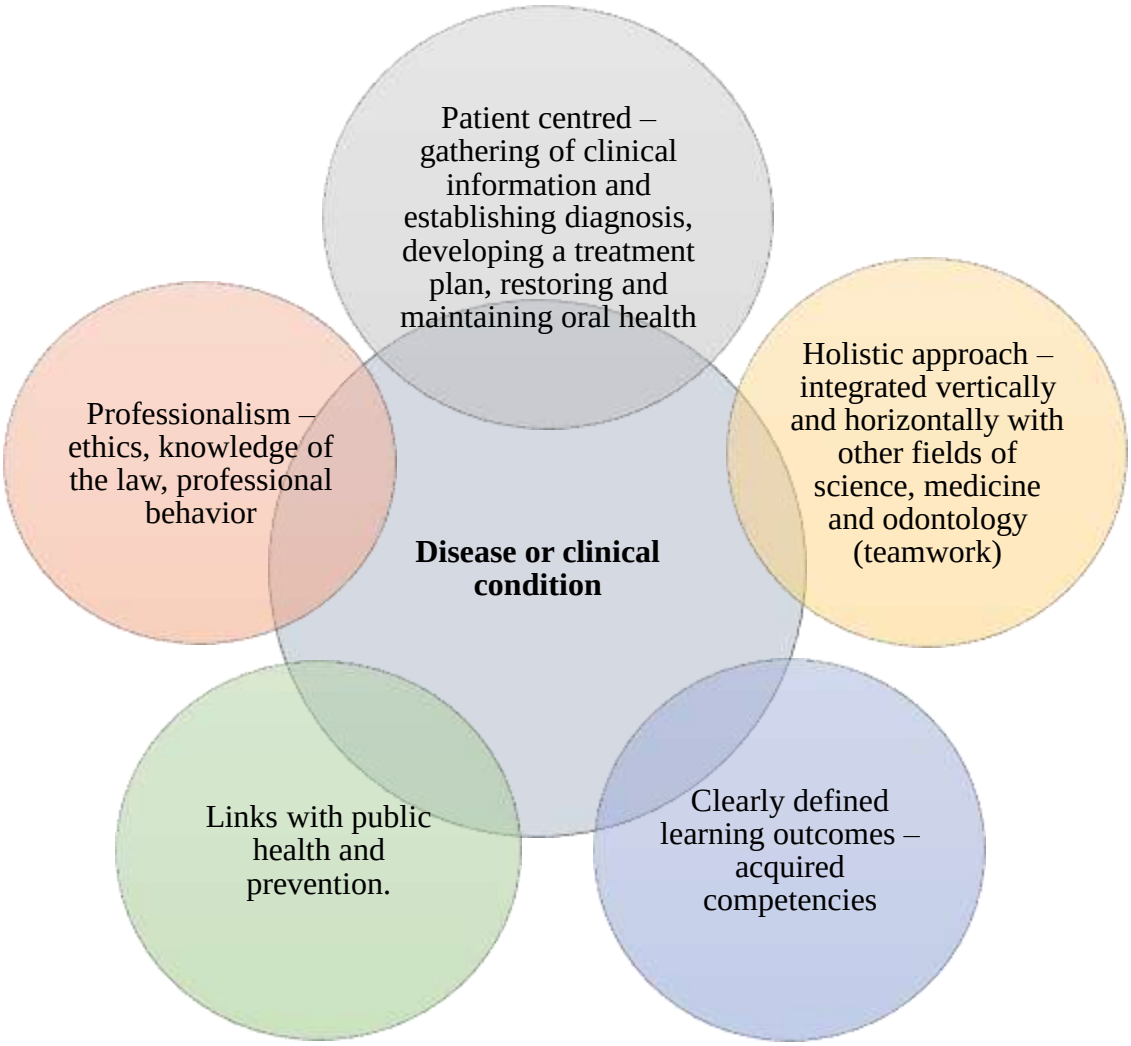

Fig.2 Principles of organising the activity, taking into account the competencies to be acquired

Methods of lecturing and studying

After assessing the students' level of knowledge and experience, the lecturer chooses the most appropriate teaching method for each topic or clinical case. A variety of teaching methods may be used as recommended by the Association *for Dental Education in Europe* (ADEE) (Table 1). All teaching

strategies need to be tailored to needs, but the main goal is to focus on the intended learning outcomes through critical thinking.

Table 1. The teaching methods recommended by ADEE, the most suitable (X) for the acquisition of individual areas of competence

Lecturing method	**Professionalism**	**Safe and effective clinical practice**	**Patient centred treatment**	**Odontology in society**
Productive failure training	-	X	-	-
Threshold concept	X	X	-	-
Feedback training	X	X	X	X
Implied training	X	X	X	-
Critical reflection	X	X	-	X
Performance of roles	X	X	X	X
Student exchange programmes	X	X	-	X
Block chain	X	X	-	-
Social communication tools	X	-	X	X
Threshold concept and personal research-based learning	X	-	X	-
Telling	X	-	X	-
Concentric wheel method	X	-	X	X

Evaluation

The lecturer evaluates the knowledge and skills shown by the students. The most appropriate assessment method is chosen and the assessment itself must be based on clear criteria and standards,

taking into account the nature of the task, the level of competence and other criteria. By using the Miller Pyramid principle, it is possible to assess students' knowledge at different levels of preparation. This conceptual model identifies the components required for clinical competence in a hierarchical order - from basic knowledge and its application (know and know how) to practical application of knowledge when working with a model (show how) and demonstrating how a specialist applies knowledge in clinical practice (Figure 3). The implementation of the model requires that the evaluation be periodic and progressive, accumulating reflective diaries / portfolios.

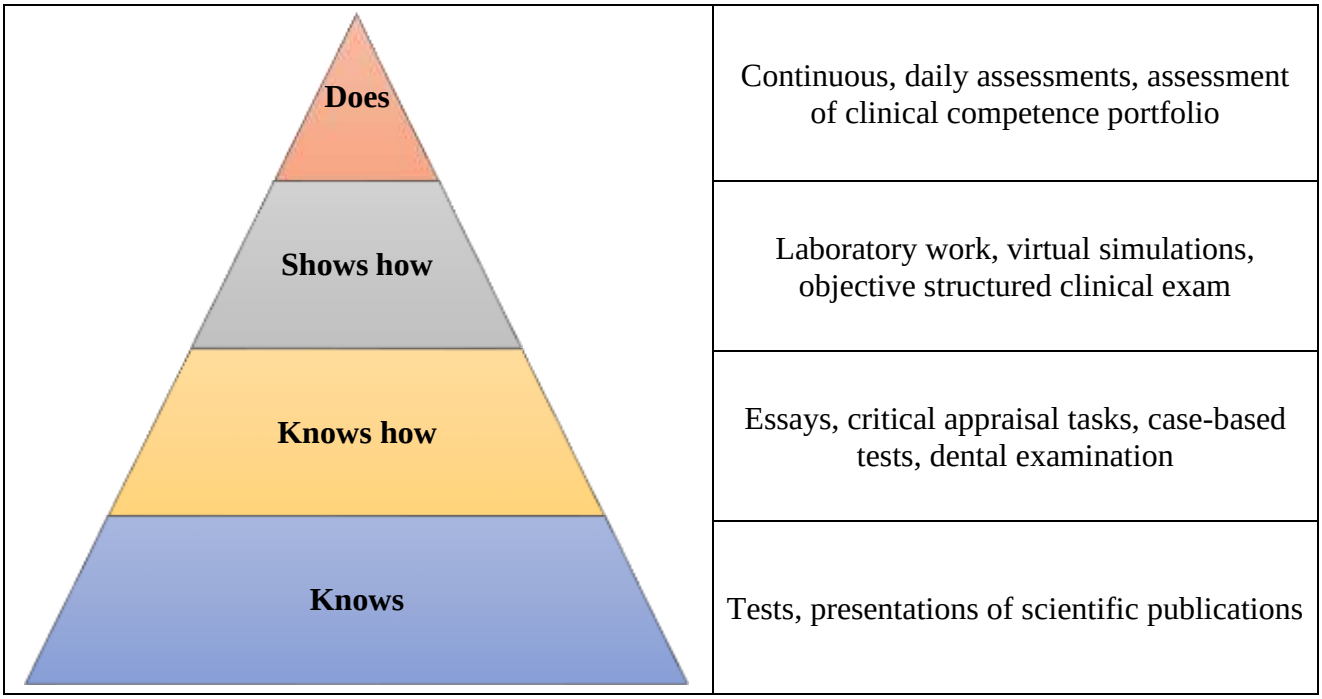

Fig.3 Miller pyramid, demonstrating a model for developing and assessing competencies

It is equally important to apply assessment methods not only according to the level of competence, but also according to the areas of competence recommended by the Association for Dental Education in Europe in the Guidelines for Undergraduate Studies in Dentistry. An assessment method can be chosen depending on the competence acquired (Table 2).

Table 2. The most optimal competence assessment methods in individual competence areas according to ADEE

Method of assessment	I Field. Professionalism	II Field. Safe and effective clinical practice	III Field. Patient centred treatment	IV Field. Odontology in society
Objective structured clinical examination (OSCE)	X	X	X	-
Clinical evaluation and feedback	X	X	X	X
Assessment registers / file	X	X	X	X
Long-term observation	X	X		X
Feedback	X	X		X
Clinical competencies		X	X	X
Adaptive assessment	X	X	-	-
Written exams	X		X	X
Oral exams	X		X	X
Virtual tests	-	-	X	-
Workplace assessment	X	-	X	X
Case discussion	X	-	X	X

The most important principles of the evaluation strategy of odontology studies are also singled out in the Description of the Field of Odontology approved by the Minister of Education and Science of the Republic of Lithuania (Order No. V-799 of 23 July 2015 of the Minister of Education and Science of the Republic of Lithuania). In line with the provisions of the aforementioned document and the ADEE guidelines for the assessment of pre-clinical skills, it is recommended to use clinical grading and feedback, adaptive assessment, reflective diaries / portfolios competencies' assessment methods. All assessment methods recommended by ADEE are suitable for the assessment of skills acquired during clinical practice, except for exams, as the latter are applied at the end of each module.

The student's pre-clinical and clinical skills practical work is assessed according to the four main areas of competence of the competency-based study model: professionalism, safe and effective clinical practice, patient-centred treatment and dentistry in society, choosing appropriate formative assessment methods to achieve specific goals. Workplace-based assessment is chosen for the final assessment of the practical work and directly observed procedural skills (DOPS). The student's pre-clinical and clinical practice is assessed by one standardised objective method. Pre-clinical practice is assessed using a quantitatively simplified model of assessment method, based on which 3 competencies of practice are assessed, covering 3 and 4 areas of their own assessment. The evaluation model of clinical practice is

expanded with 2 more competencies and 5 evaluation areas of each competence. The final practice evaluation score consists of the total competency score and of the derived arithmetic mean of the evaluated pre-clinical or clinical procedure (Table 4, Table 5).

Table 3. Evaluation of competency-based clinical practice in profile clinics

Composition of clinical practice (acquired competencies)	**Description of categories**	**Maximum grade**	**Part of the assessment grade.**	
1. Professionalism	1. proper use of allocated time; 2. appropriate professional conduct in communication with colleagues and support staff; 3. neat clothes, punctuality.	10	10	50
2. Patient centred treatment	1. ability to communicate with the patient, meaning, collection of medical history, provision of information to the patient about the condition of the mouth / teeth, explanation and coordination of planned diagnostic and treatment procedures; 2. examination of the patient (selection of appropriate diagnostic methods) and preparation of the treatment plan, filling in the documentation.	10	10	
3. Safe and effective clinical practice	1. compliance with infection control rules; 2. analgesia (performed independently, correct methodology, successful result).	10	10	
4. Odontology in society	1. knowledge and promotion of prevention measures.	10	10	
5. Treatment procedure	1. the clinical procedure under evaluation is recorded.	10	50	
Overall assessment	the average of 1, 2, 3, 4 competencies and 5 competence assessment is derived in equal proportion ((average of 1, 2, 3, 4 competencies assessment + 5 competence assessment): 2).	10	100	

Table 4. Evaluation of a student's preclinical work according to the competency-based study model

Acquired Competencies	**Categories of competencies**	**Assessment (grades)**				**Assessment (grades)**
		2	**1.5**	**1**	**0**	
1. Professionalism	Each category is assigned the maximum evaluation	2.5				10
	1. Time utilisation and punctuality	2.5				
	2. Clothing	2.5				
	3. Empathy	2.5				
	4. Ergonomics	2.5				
2. Safe and effective clinical practice	Each category is assigned the maximum rating	3.33				10
	1. Infection control	3.33				
	2. Quality audit of services provided	3.33				
	3. Efficient use of resources	3.33				
3. Preclinical procedure	Maximum evaluation is given by evaluating the preclinical procedures described					10
	Record of the clinical procedure under evaluation					
Overall assessment (grades)	The arithmetic mean is derived of 1 and 2 competencies (40%) + 3 competencies assessment averages (60%) (general (40%) and treatment procedures (60%)).					10

Table 5. Evaluation of a student's preclinical work according to the competency-based study model

Area of competence	Categories of competencies	Assessment grades				Grade
		2	1.5	1	0	
1. Professionalism	1. Use of time and punctuality	x				6.5
	2. Clothing			x		
	3. Empathy		x			
	4. Management of patient records	x				
	5. Ergonomics				x	
2. Safe and efficient clinical practice	1. Infection control					
	2. Teamwork					
	3. Risk assessment and management					
	4. Quality audit of services provided					
	5. Efficient use of resources					
3. Patient oriented treatment	1. Collection of medical history					
	2. Examination of the patient					
	3. Preparation of treatment plan and documentation					
	4. Providing information to the patient about the condition of the mouth / teeth and the planned treatment					
	5. Analgesia					
4. Odontology in society	1. Prevention of illness					
	2. Prevention to avoid complications					
	3. Patient risk groups by criteria (comorbidities, age, etc.)					
	4. Peculiarities of treatment of high risk patients					
	5. Promotion of preventive measures					
Assessment of competencies 1, 2, 3, 4	The average of 1, 2, 3, 4 competencies assessment is derived					
5. Clinical procedure	The clinical procedure under evaluation is recorded					
Overall assessment	The arithmetic mean of 1, 2, 3, 4 competencies + 5 competency assessments is derived					

Reflection

At the end of the practical work, the lecturer discusses with the students the process of the work, the issues raised, the results achieved, the quality of the practical tasks, the stages that were successful and where mistakes were made, and recommendations for deepening students' practical and theoretical knowledge.

Key questions:

- What went well?
- What were the difficulties?
- How can they be avoided in the future?
- What actions were helpful?
- Which group has made progress and why?

Questions for the summary:

- Did we achieve what we set out ourselves?
- What did we learn about the content of the task?
- How can we work better together next time?
- Are the acquired knowledge / understanding, skills sufficient, is the practical task understood and mastered?

At the end of the practical work, the lecturer evaluates the students' practical work according to the established procedure. If the practical task is performed in several sessions, its assessment is performed after the completion of the whole task.