

26788 - Learning and improvement of clinical reasoning

Syllabus Information

Academic Year: 2020/21

Subject: 26788 - Learning and improvement of clinical reasoning

Faculty / School: 104 - Facultad de Medicina

Degree: 304 - Degree in Medicine

ECTS: 5.0

Year: 5

Semester: First semester

Subject Type: Optional

Module: ---

1.General information

1.1.Aims of the course

The subject and its expected results respond to the following approaches and objectives:

- To know the process of clinical reasoning in medicine as a crucial element of clinical practice and professionalism.
- Identify the biases that can influence this process and that can affect patient safety.
- To acquire skills to improve the clinical reasoning process in the doctor-patient clinical interview, in the handling of diagnostic tests and in prescription;
- To train students to detect possible errors/bias in their diagnostic process and to promote attitudes and habits that allow them to detect and reduce cognitive errors in the diagnostic-therapeutic process;
- To provide tools for learning and continuous improvement of clinical reasoning in its diagnostic and therapeutic stages for the rest of their continuous medical training.
- To train the student in the use of the methodology of learning clinical reasoning so that they can integrate the medical knowledge acquired and the clinical experiences lived in the earliest and most effective way possible in order to develop their clinical reasoning in an optimal way. This early incorporation of knowledge and reasoning skills has been shown in different research works to be the best way of training health professionals. The improvement of the reasoning process will allow students to develop as excellent professionals who will then apply and improve specifically in the specialty they later practice.

1.2.Context and importance of this course in the degree

Clinical reasoning in clinical practice

Health care professionals need to be flexible in their approach to decision-making and ensure continuity of care. The health care professional's ability to provide safe, high quality health care can be dependent on their ability to reason, think and judge, which can be limited by lack of experience (Benner, Hughes, & Sutphen, 2008).

Simmons (2010, p. 1155) states that 'clinical reasoning is a complex cognitive process that uses formal and informal thinking strategies to gather and analyse patient information'. This process is reliant on the health care professional using both their intuition and knowledge to influence decision-making for individual client circumstances. The experience and knowledge of the health care professional is an important consideration in the consolidation of clinical reasoning. Simmons (2010) considers this by suggesting that newly qualified healthcare professionals, for example, may identify fewer cues, have difficulty identifying complex diagnosis and may not re-evaluate data as often as experienced ones. This has the potential to have a negative impact on patient care.

Hamm (1991, cited in Round, 2001) agrees that the clinical situation and the practitioner's knowledge and clinical experience could impact on the clinical reasoning employed and its efficiency. However, an individual's extensive experience could be irrelevant if faced with a situation that they have not previously been exposed to.

Thompson and McCaughan (2002) conclude that a good clinical decision is one that takes into account the current best practices, considers patient preferences and is undertaken by experienced medical students.

Teaching clinical reasoning can be difficult to facilitate in an educational setting due to the lack of clinical context. Many of the traditional styles of teaching introduce decision-making processes as a method of 'pattern recognition'. This relies on the health care professional to draw upon past experiences to re-examine them in light of the 'new' clinical scenario (Boyd, 2011, p. 574).

The use of Clinical Reasoning Learning Situations (CRLS) has been increasingly adopted to address this criticism and to support the clinical teaching of necessary skills required for safe and competent practice. CRLS enables health care professionals to be exposed to clinical reasoning strategies and encourages them to explore the predisposing factors and draw upon inter-professional experience to enhance the decision-making process. This is all carried out with some prepared CRLS so that all issues can be openly explored without the time pressures that medical students face in the clinical setting. At the end medical students will develop their own CRLS.

This training is essential for the future medical professional regardless of the medical specialty he or she will develop in the future whether it is a medical, surgical or laboratory specialty.

In this course, learning clinical reasoning is approached with a progressive theoretical-practical agenda that will be developed according to the following teaching scheme for training in:

- a) Attitudes: promotion of a disposition of intellectual opening and activation of professional qualities that promote the integration of clinical knowledge and clinical experience to develop an optimal personal model of clinical reasoning.
- b) Knowledge: knowing the concepts and foundations of cognitive models, of knowledge organization through semantic networks and diagnostic scripts, of case re-evaluation treatment. In addition, to provide tools for evaluating the personal reasoning process of each student in order to identify the cognitive errors in this process and improve it. Among other aspects, it considers the evaluation of the clinical interview, the ideal interpretation of complementary tests, and the reasoned prescription in that process. Knowing the healthcare environment, the risks and the impact of overdiagnosis and overtreatment on patient safety. In this way, the improvement of clinical reasoning is promoted as a key element of medical professionalism.
- c) Skills:
 - Training to implement in the clinical interview a reasoning process that allows the trainee to start the clinical examination with at least several possible diagnoses.
 - Training to re-frame reasoning in complex cases from non-analytical models to analytical models.
 - Training to self-assess and identify possible cognitive errors in our reasoning process and improve them. Also, to assess the impact of over-diagnosis and over-treatment on personal clinical practice.
 - Training to incorporate the appropriate complementary tests and the most suitable reasoned prescription into the reasoning process.
 - Training to reason in a prudent way the prescriptions they consider appropriate after the reasoning process.

1.3.Recommendations to take this course

This subject is taught in its entirety in the Anillo Digital Docente of the University of Zaragoza, in its Moodle platform: www.add.unizar.es

It is an optional course of the medical degree. It will apply clinical conceptual knowledge to clinical practice in order to develop clinical reasoning skills and develop personal improvement tools. Therefore, it is recommended that students who are going to take this course have taken at least one clinical course and have or are taking at least one clinical rotation in a health center in order to know the environment in which they are going to carry out their healthcare activity and where they are going to apply the clinical reasoning methodology as an essential competence.

Clinical reasoning is a competence understood as a working method that leads the medical professional to act and to make clinical decisions.

Students may be doing Erasmus practices abroad since it is a subject that is taught entirely virtually, the only technical requirements are to be enrolled in the course, to have access to the ADD platform and an Internet connection. With these requirements, the course can be accessed from anywhere in the world and is available 24 hours a day.

2.Learning goals

2.1.Competences

Completing this course:

CB1 - Students can demonstrate their knowledge and understanding of the clinical reasoning process as part of the basic skills to be used in their internship.

CB2 Students can demonstrate their knowledge and understanding of clinical reasoning biases, heuristics, and some activities to reduce diagnosis error as part of the basic skills to be used in their internship.

CB3- Students can apply their knowledge and skills to their daily work in a professional manner and have competences typically demonstrated through performing different clinical cases and sharing diagnostic and therapeutics scripts for their internship.

CB4 - Students have the ability to gather and interpret relevant data (within the different clinical cases) to inform judgments that include a reflection on relevant differential diagnostic and therapeutic issues on the simulated cases.

CB4 - Students can communicate information, ideas, problems, reflexions and solutions into the different online forums of the course.

CB5 - Students have developed those learning skills necessary to undertake their intership with a high degree of autonomy and competence.

2.2.Learning goals

In order to pass this course, the student must demonstrate the following learning outcomes:

1. To know the analytical and non-analytical cognitive models.
2. To know the most frequent potential cognitive errors in the clinical reasoning process: in the initial evaluation stage, in the in-depth anamnesis, in the interpretation of clinical signs or symptoms, in the interpretation of complementary tests and finally in the closing of the diagnosis and selection of treatments.
3. To know the methodology of the clinical reasoning process that is developed through the doctor-patient interview by means of the design of scripts of the main diagnostic categories.
4. To know the importance of handling complementary tests in the clinical reasoning process.
5. To understand the importance of reasoned prescription when managing the resolution of a clinical case.
6. To become aware of their reasoning process of the cognitive models they use through clinical scenarios of learning clinical reasoning (ECARC)
7. To become aware of their reasoning process of potential cognitive errors through clinical scenarios of learning clinical reasoning (ECARC)
8. To be aware of the use of complementary tests and reasoned prescription through clinical scenarios of learning clinical reasoning (ECARC)
9. To demonstrate competence in the process of reasoning through the personal elaboration of a clinical scenario for learning final clinical reasoning (ECARCFinal).
10. To specify the improvements in their reasoning process based on the reflection of the clinical scenarios of learning clinical reasoning developed in the course.

2.3.Importance of learning goals

The learning outcomes of this course enable the student to improve competence in clinical reasoning. Clinical reasoning is one of the transversal competencies defined in the training curriculum of all medical specialties together with communication, bioethics, and improvement of the quality of care. It is therefore one of the bases of medical professionalism.

Learning clinical reasoning in a systematized way and early in the undergraduate studies allows students to become aware of this process from the beginning of clinical practice. In this way, they can integrate the medical knowledge acquired and clinical experiences lived in the clinical stage in the earliest and most effective way possible. This early incorporation of knowledge and reasoning skills has been shown in different research works to be the best way of training health professionals.

On the other hand, students are offered tools to improve their own reasoning process that they can continue to apply throughout their continuous training in any specialty that they eventually practice professionally.

3.Assessment (1st and 2nd call)

3.1.Assessment tasks (description of tasks, marking system and assessment criteria)

The student must demonstrate that has achieved the expected learning outcomes through the following assessment TASKS in a continuous assessment during the whole course.

There are two different types of modules in the course :

8 Concept Modules

8 Practical Modules or Clinical Reasoning Learning Scenarios (CRLS).

Systems for assessing the acquisition of competences for Concept Chapters :

1. Multi-choice questions.
2. Essay-type questions.
3. Problem-solving questions on scientific papers or videos.
4. Participation in discussion forums in each module.
5. Global task: developing their own Clinical Reasoning Learning Clinical case.

Detailed distribution per module:

Each theoretical module lasts one week. In each module, the students have a recorded presentation with the most relevant aspects of the theory. They have a document in Word and pdf with the complete theoretical content. Each module has a task to be carried out by the student which may consist of commenting on an article, watching a video, and commenting on it or analyzing a clinical case. Each module has a participation forum where students discuss with the teaching team aspects related to the theoretical content and tasks of that module.

At the end of each module, the student must have participated in the module's discussion forum by answering the questions for the group discussion posed by the teacher at least once. They must have completed and uploaded the module task and passed the module test with a value of 6/10 or more. The exam is also for teaching purposes and can be repeated up to 5 times, keeping the highest score achieved. Once the exam is passed, the materials of the next module will be activated.

The practical modules consist of solving 8 clinical scenarios of learning clinical reasoning to train the competence and be prepared to develop your own final course scenario.

The final module consists of an end-of-course assignment consisting of a clinical case study from your personal experience with the clinical scenario format of clinical reasoning training, type ARC session (clinical reasoning training). Each student prepares the clinical case and goes up to the module task. You can also share it with colleagues in the discussion forum. Students will have a library of final cases from previous years for reference.

At the end of the course, students are given an evaluation survey to identify areas of improvement for future editions of the course.

Grading system applied to the course:

Each content is evaluated in a range of 1-3 and this grade is weighted according to a percentage of weight assigned to each activity:

The course grade is constructed as follows:

Participation in the forums (at least one participation in each forum): 16

Tasks of the modules: 24%.

Passing the module tests: 24%

Implementation of ECARCs: 24%.

Completion of Final ECARC: 12%

Global evaluation dates: a continuous evaluation of the tasks is carried out, establishing a final delivery date in each call.

First call: End of January

Second call: Beginning of September

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The course is a starting point for medical professional development, in relation to a basic competence for every medical professional. Clinical reasoning is a basic competence that every physician should learn and apply in his/her daily clinical practice regardless of the specialty that he/she will later develop throughout his/her professional career.

The learning of this competence, according to the latest research in the field of cognitive psychology, must be done from the beginning of the training, so that the acquisition of physiopathological knowledge is linked from the beginning to daily clinical activity where such improved knowledge is to be applied with personal clinical experience. Research on training in clinical reasoning has concluded that the earlier the trainee links knowledge and clinical experience the more effective and efficient his or her performance in the field of clinical reasoning will be.

Therefore, through this course, students will acquire knowledge of the clinical reasoning process and link it to clinical learning scenarios.

Students will have a personal access key to the course in the digital platform of the University (www.add.unizar.es). These keys will allow you to view and download documents, links, videos to prepare the modules; communicate with professors and colleagues through the discussion forums open to each module. On the same platform, a personal messaging system is available to interact with teachers individually if the student needs it.

At the end of the course, a reflective work is proposed based on the final learning case in which the student will specify some objectives to improve his/her personal reasoning process for his/her clinical practice stage.

4.2. Learning tasks

The program offered to the student to achieve the learning outcomes expected in the subject comprises the following learning activities:

1. Reflective participation in discussion forums in relation to the theoretical and practical concepts worked on in the different modules of the course.
2. Handling of specific literature in relation to the improvement of clinical reasoning.
3. Analysis of Clinical Scenarios with Clinical Reasoning Learning (CSCRL) methodology.
4. Preparation of a Clinical Scenario with the methodology of Clinical Reasoning Learning (CSCRL) of the student as a final work with a personal reflection on the learning process itself.

4.3. Syllabus

The planning of learning activities is done on a weekly basis. It is recommended that learners take the different modules in the corresponding weeks so that group learning through the discussion forums of each module can also be used.

The course has 5 ECTS. One ECTS is equivalent to 10 teaching hours. They are distributed as follows: each theoretical module is assigned 0.4 ECTS. The 8 theoretical modules are 3.2 ECTS. Each Clinical Reasoning Learning Scenario (ECARC) is 0.1 ECTS. The completion of the 8 ECARCs is 0.8 ECTS. The development of the student's own Final ECARC is assigned 1 ECTS.

The final date for submission of papers and tests for the first call will be the end of January 2021 and for the second call will be the beginning of September 2021.

Conceptual modules:

Module 1: Concepts and models of clinical reasoning

Module 2: Clinical Reasoning and Patient Safety

Module 3: Activities to improve clinical reasoning

Module 4: Clinical reasoning in the consultation: doctor-patient interview

Module 5: Clinical reasoning and complementary tests

Module 6: Decision-making for prudent prescribing

Module 7: Professionalism and continuous improvement of the clinical reasoning process

Module 8: Analyzing over-diagnosis and over-treatment from clinical reasoning

Clinical scenario simulation modules:

Clinical Reasoning Learning Scenario (ECARC) 1 addressing urinary symptoms

Clinical Reasoning Learning Scenario (ECARC) 2 addressing respiratory symptoms

Clinical Reasoning Learning Scenario (ECARC) 3 addressing dizziness

Clinical Reasoning Learning Scenario (ECARC) 4 addressing abdominal discomfort/pain

Clinical Reasoning Learning Scenario (ECARC) 5 addressing joint pain

Clinical Reasoning Learning Scenario (ECARC) 6 addressing headache

Clinical Reasoning Learning Scenario (ECARC) 7 addressing back pain

Clinical Reasoning Learning Scenario (ECARC) 8 addressing skin rash

Development by the student of a Final Clinical Reasoning Learning Scenario (Final ECARC): It consists of the development of a clinical case explaining the process of clinical reasoning that has been followed in the phase of diagnosis, request for tests and proposal of a more probable diagnosis and treatment following the clinical reasoning learning methodology learned during the course. At the end of the course, the student will reflect on his/her own learning process and propose areas of improvement for the future professional.

Recommendations:

- Each student will send their contributions to the discussion forums of each module, to stimulate group learning.
- Each student will upload to the course platform the files corresponding to the completion of the task indicated in each theoretical module and clinical learning scenarios.
- Each student will perform his/her own clinical learning scenario. This scenario may be based on their experience in practice, their experience as a patient, or that of a close relative, following the

learning methodology of reasoning applied in the modules of clinical scenarios for learning clinical reasoning (ECARC).

The whole course will be performed in the Teaching Digital Ring (ADD) of ZARAGOZA UNIVERSITY. Platform MOODLE: <https://moodle2.unizar.es/add/>

4.4.Course planning and calendar

WEEKS	MODULES
Week 1	Module 1: Concepts and models in clinical reasoning
Week 2	Module 2: Clinical reasoning and patient safety
Week 3	Module 3: Activities to improve clinical reasoning
Week 4	Module 4: Clinical reasoning in the clinical setting: doctor-patient encounter
Week 5	LOCAL FESTIVITIES
Week 6	Module 5: Clinical reasoning and complementary tests
Week 7	Module 6: Prudent prescription
Week 8	Module 7: Professionalism and Clinical Reasoning
Week 9	Module 8: Overdiagnosis and overtreatment
Week 10	Clinical Reasoning Learning Situation (CRLS) 1
Week 10	Clinical Reasoning Learning Situation (CRLS) 2
Week 11	Clinical Reasoning Learning Situation (CRLS) 3
Week 11	Clinical Reasoning Learning Situation (CRLS) 4
Week 12	Clinical Reasoning Learning Situation (CRLS) 5
Week 12	Clinical Reasoning Learning Situation (CRLS) 6
Week 13	Clinical Reasoning Learning Situation (CRLS) 7
Week 13	Clinical Reasoning Learning Situation (CRLS) 8
Week 14 to 17	Developing Students' Clinical Reasoning Learning Situation (CRLS).
Week 19	Deadline to complete tasks and CRLS.

The subject is organized in 8 theory courses and 8 Clinical Reasoning Learning Situations (CRLS)

Every student has to prepare a final Clinical Reasoning Learning Situation (CRLS) using clinical reasoning learning methodology.

The subject will start in September 2020.

The deadline to send tasks and Final CRLS will be end of January 2021.

Those who were not able to finish de subject at the deadline will have a second call deadline to send tasks and final CRLS at the beginning of September 2021.

4.5.Bibliography and recommended resources

http://biblos.unizar.es/br/br_citas.php?codigo=26788&year=2020