

**COURSE DATA****Data Subject**

Code	34472
Name	Casualties, medical emergencies and clinical toxicology
Cycle	Grade
ECTS Credits	6.0
Academic year	2023 - 2024

Study (s)

Degree	Center	Acad. year	Period
1204 - Degree in Medicine	Faculty of Medicine and Odontology	5	Second term

Subject-matter

Degree	Subject-matter	Character
1204 - Degree in Medicine	12 - Human clinical training I	Obligatory

Coordination

Name	Department
BADENES QUILES, RAFAEL	40 - Surgery
PALAU SAMPIO, PATRICIA	260 - Medicine

SUMMARY

The subject *Emergency, Medical Emergencies and Clinical Toxicology* is shared with the Departments of Medicine and Surgery and it is included in the module *Human Clinical Formation*. The general objective of its teaching is the formation of professionals with theoretical and practical knowledge that provides them skills to manage the patients in critical situations, with an integral, healing and preventive medicine that encourages health in any of the areas of the acute-serious illness.

Due to its attending nature, the processes involved in the pathogenesis of the acute and chronic diseases will be analysed and the criteria and diagnostic methods used, as well as the treatments indicated for each of the pathological situations, will be highlighted. As it is about acute and serious clinical symptoms, the knowledge and the main diagnostic techniques and the practical contents are of great importance in their learning, with particular reference to the clinical practice.



PREVIOUS KNOWLEDGE

Relationship to other subjects of the same degree

There are no specified enrollment restrictions with other subjects of the curriculum.

Other requirements

OUTCOMES

1204 - Degree in Medicine

- Perform a physical examination and a mental health assessment.
- Have the capacity to make an initial diagnosis and establish a reasonable strategy of diagnosis.
- Recognise and address situations which may be life-threatening and others which demand immediate attention.
- Establish the diagnosis, prognosis and treatment, applying principles based on the best information available and on conditions of clinical safety.
- Indicate the most accurate therapy in acute and chronic processes prevailing, as well as for terminally ill patients.
- Plan and propose appropriate preventive measures for each clinical situation.
- Acquire proper clinical experience in hospitals, health care centres and other health institutions, under supervision, as well as basic knowledge of clinical management focused on the patient and the correct use of tests, medicines and other resources available in the health care system.
- Know how to use the sources of clinical and biomedical information available, and value them critically in order to obtain, organise, interpret and communicate scientific and sanitary information.
- Know how to use IT in clinical, therapeutic and preventive activities, and those of research.
- Keep and use medical records which contain information about the patient for later analysis, preserving the confidentiality of personal data.
- Proper organisation and planning of the workload and timing in professional activities.
- Team-working skills and engaging with other people in the same line of work or different.
- Criticism and self-criticism skills.
- Capacity for communicating with professional circles from other domains.
- Acknowledge diversity and multiculturality.
- Consideration of ethics as a fundamental value in the professional practise.
- Working capacity to function in an international context.
- Recognises, diagnoses and guides the management of intoxication.



- Recognises, diagnoses, and guides the management of vital risk situations.
- Knows how to perform a complete anamnesis, focused on the patient and orientated to various pathologies, interpreting its meaning.
- Knows how to perform a physical examination of the body organs and systems, as well as a psychopathological exploration, interpreting their meanings.
- Knows how to evaluate modifications in clinical parameters at different ages.
- Knows how to carry out manoeuvres of basic and advanced life support.

LEARNING OUTCOMES

The knowledge, the clinical skills and the scientific language acquired in this subject will make the student capable of recognising and understanding the critical pathology with the aim of being able to diagnose and guide immediately the treatment of the main clinical entities, as well as to communicate with the patient and his/her environment, to understand the process of the disease individually and to perform the proper therapeutic in the frame of the Critical Medicine.

Once the subject is finished, the students must be able to:

- Acquire the necessary skills to elaborate a diagnostic judgment and to establish a differential diagnosis with acute-serious pathologies in the extra-hospital area, in the hospital emergencies area and the critical care area.
- Know the value of the different explorations and complementary diagnostic tests in urgent pathology.
- Know the basic management of the treatment of acute-serious diseases, depending on the higher available evidence.
- Evaluate the seriousness of the patient and his/her prognosis and to acquire the capacity to structure the information that must be delivered to the patient and the family.
- Identify the critical pathology that does not allow therapeutic delay.
- Acquire knowledge of the main clinical symptoms that the emergencies and the medical-surgical emergencies involve.
- Acquire attitude and skills to develop a proper and correct action in the emergencies.
- Acquire the skill to identify, manage and treat emergencies and to evaluate their transfer to a specialized centre.

DESCRIPTION OF CONTENTS



1. THEORETICAL LESSONS: MEDICINE AREA

1. The hospital Emergency Department. Concept. Care structure. Diagnosis orientation. Hospital Triage in an Emergency Department.
2. Acute dyspnoea. Overall respiratory failure.
3. Acute heart failure. Cardiogenic shock. Hypertensive emergencies
4. Acute chest pain. Acute coronary syndromes in the Emergency Department.
5. Cardiac arrhythmias in the Emergency Department. Syncope.
6. Evaluation of fever in the Emergency Department.
7. Acute Renal Failure.
8. Gastrointestinal and hepatic emergencies.
9. Neurological emergencies (I): Headache. Ischaemic vascular accident and non-traumatic cerebral haemorrhage.
10. Neurological emergencies (II) Altered level of consciousness. Convulsions. Agitation.
11. Acute decompensation of endocrine origin.
12. Environmental, chemical and biochemical emergencies: Intoxications and acute allergic reactions.

2. THEORETICAL LESSONS: SURGERY

1. Structural and functional elements in Medical Emergencies. Chain of survival. Concept. Structure. Goals. Methodology.
2. On-site health care. Characteristics of the advanced medical post. Triage Concept. Types. Goals. Clinical utility. Priority care. Resources.
3. Acute circulatory failure. Types of shock. Hypovolemic shock. Aetiology. Diagnosis. Types of haemodynamic monitoring. Blood volume replacement: electrolytic solutions.
4. Sepsis and septic shock. Clinical guidelines of the Sepsis Survival Campaign.
5. Acute hypoxemic respiratory failure. Aetiopathogenesis and pathophysiology.
6. Thoracic trauma. Patient in the process of drowning. Clinical assessment. Care management.
7. Principles of mechanical ventilation. Extracorporeal respiratory assistance systems.
8. Acute abdomen. Concept. Causes. Assessment. Therapeutic management. Abdominal compartment syndrome.
9. Polytrauma patient. Concept. Diagnosis orientation. Prioritisation and care management. Crush syndrome.
10. Cranioencephalic trauma. Management of intracranial hypertension.
11. Burn patient. Concept. Classification. Clinical assessment. Care management.

3. SEMINARS

SEMINARS: MEDICINE

1. Emergency action protocol in acute coronary syndromes.
2. The patient with decompensated liver cirrhosis
3. Hospital triage.
4. Emergency action protocol in acute respiratory failure.
5. Coma and convulsions: Diagnosis and initial management



6. ECG interpretation.

SEMINARS: SURGERY

1. Emergency airway approach. Algorithms, rescue, cricothyroidotomy and other techniques.
2. Outpatient triage.
3. Non-invasive ventilation.
4. Practical clinical management of hypovolemic shock.
5. Arterial blood gas.
6. Polytrauma emergency action protocols.

4. CLINICAL CASES

1. Multiple-accident. Politraumatism.
2. Thoracic traumatism.

5. CLINICAL PRACTICES

To be performed in the services which assist this kind of pathologies.

WORKLOAD

ACTIVITY	Hours	% To be attended
Seminars	26,00	100
Theory classes	26,00	100
Clinical practice	23,01	100
Attendance at events and external activities	2,00	0
Development of group work	11,00	0
Study and independent work	35,00	0
Readings supplementary material	8,00	0
Preparation of practical classes and problem	19,00	0
TOTAL	150,01	

TEACHING METHODOLOGY

In the **theoretical lessons**, the teacher will expose, through master class, the most important concepts and contents in a structured way, to obtain the knowledge and skills that the students must acquire. The students' participation will be encouraged. The teaching materials used by the professor will be available, if he considers it appropriate, through the electronic resource Aula Virtual.



Classroom practices:

- **Participative seminars**, elaborated with the material provided by the professor and with the students' active participation in their exposition.
- **Clinical cases study**: intensive and complete analysis of a fact, problem or real happening with the goal of knowing it, interpreting it, contrasting data, diagnosing it and, sometimes, training in the possible alternative procedures of solution.

Clinical practices. Students' clinical stays in the healthcare services of the different university hospitals (hospital medical Emergencies Service, Reanimation Unit and Intensive Care Unit) and in the SAMU.

The gender perspective and the sustainable development goals (SDGs) will be incorporated into teaching, whenever possible.

EVALUATION

Students must have attended at least 80% of the practicals before they can take the exam.

The exam will consist of a written test with questions of a theoretical and practical content. It will consist of 2 parts: Medicine and Surgery.

Area of Medicine:

Maximum total grade: 5 points. It will consist of a written test in two sections:

- 1) Theory test: 30 multiple-choice questions. Each question will have 4 possible answers of which only one is valid. Grading will be as follows: correct 1 point, blank 0 points, incorrect (-0.33 points).
- 2) Practical evaluation: 15 multiple-choice questions. Each question will have 4 possible answers of which only one is valid. Grading will be as follows: correct 1 point, blank 0 points, incorrect (-0.33 points).

Area of Surgery:

Maximum total grade: 5 points. It will consist of a written test in two sections:

- 1) Theory test: 30 multiple-choice questions. Each question will have 4 possible answers of which only one is valid. Grading is as follows: correct 1 point, blank 0 points, incorrect (-0.33 points). T
- 2) Practical evaluation: 15 multiple-choice questions. Each question will have 4 possible answers of which only one is valid. Grading will be as follows: correct 1 point, blank 0 points, incorrect (-0.33 points).

It is not necessary to pass separately each area.



Attendance to practical sessions is mandatory. Unjustified non-attendance to more than 20% of the sessions will make it impossible to pass the course.

In order to access to an advance on the call of this subject, it is a requirement that the student has coursed all his/her practices.

Students are reminded of the importance of carrying out evaluation surveys on all the teaching staff of the degree subjects.

REFERENCES

Basic

- ATLS (Advanced Trauma Life Support) Student Course Manual. American College of Surgeons. 10^a ed, 2018. Editorial American College of Surgeons. ISBN-78-0-9968262-3-5.
- Fundamentos de Cuidados Críticos en soporte inicial (FCCS). Mclean B, Zimmerman J. 3^a ed, 2008. Editorial Society of Critical Care Medicine. ISBN-13: 9789507623844.
- Emergency Medicine: a focused review of the core curriculum. Schofer JM. 2^a ed, 2012. Editorial American Academy of Emergency Medicine Resident and Student Association.
- Global emergency medicine: a review of the literature from 2013. Becker TK, Jacquet GA, Marsh R et al. Acad Emerg Med 2014;21:810-7.
- Clinical research priorities in emergency medicine: results of a consensus meeting and development of a weighting method for assessment of clinical research priorities. Thom O, Keijzers G, Davies S, McD Taylor D, Knott J, Middleton PM. Emerg Med Australas 2014;26:28-33.
- Education scholarship in emergency medicine part 1: innovating and improving teaching and learning. Sherbino J, Van Melle E, Bandiera G et al. CJEM 2014; 16 Suppl1:S1-5.
- Education scholarship in emergency medicine part 2: supporting and developing scholars. Bandiera G, Leblanc C, Regehr G et al. CJEM 2014;16Suppl1:S6-S12.
- Education scholarship in emergency medicine part 3: a "how-to" guide. Bhanji F, Cheng A, Frank JR, Snell L, Sherbino J. CJEM 2014;16Suppl1:S13-8.
- 9. Manual de Urgencias Hospitalares Universitarios Virgen del Rocío. Edita: Hospitales Universitarios Virgen del Rocío. Carretero de la Fuente. ISBN: 978-84-692-1073-4. Descarga directa en: <http://www.juntadeandalucia.es/servicioandaluzdesalud/hhuuvr/extranet/CmsHUVR/galerias/documentos/profes>
- Fuentes basadas en la web:
(Kleinpell R et al. Web-based resources for critical care education. Crit Care Med 2011; 39: 541-53.)
ARDS support center, <http://www.ards.org>
Gasometria: <http://orlandohealth.com/pdf%20folder/Inter%20of%20Arterial%20Blood%20Gas.pdf>
Critical care medicine tutorial, <http://www.4um.com/tutorial/#Current%20Concepts>
Cardiac electrocardiograms, <http://www.ecglibrary.com/>
ECG Learning Center Tutorial, University of Utah, <http://library.med.utah.edu/kw/ecg/>



- ECG interpretation, Univ Wisconsin, <http://www.fammed.wisc.edu/medstudent/pcc/ecg/ecg.html>
ECG interpretation, www.12leadecg.com/intro/
SCCM disaster resources,
http://www.sccm.org/Public_Health_and_Policy/Disaster_Resources/Pages/default.aspx
Federal Emergency Management Agency, <http://training.fema.gov/EMICourses/EMICourse.asp>
- Advanced cardiac life support, http://www.skillstat.com/Flash/ACLS_Stat531.html
Baylor College of Medicine, http://www.hypertensiononline.org/home/about_HOL.cfm
Cardiovillage, <http://www.cardiovillage.com>
SCCMs Cardiac Knowledge Line,
<http://www.learnicu.org/Pages/TopicPage.aspx?topicCardiovascular>
SCCM resident ICU course, <http://www.learnicu.org/Fundamentals/RICU/Pages/default.aspx>
European Society of Intensive Care Medicines Patient-Centered Acute Care Training,
<http://www.esicm.org/Data/ModuleGestionDeContenu/Pages/Generees/03-education/0B-pact-programme/25.asp>
Critical Care A Day, <http://www.icuroom.net>
Medscape Critical Care CME, <http://cme.medscape.com/criticalcare>
Critical Care medicine tutorials, <http://www.ccmtutorials.com/>
 - SCCMs Critical Care Cross-Training for Hospital-Based Non-ICU Healthcare Providers,
<http://www.learnicu.org/Pages/default.aspx>
SCCMs Infection Knowledge Line, <http://www.learnicu.org/Pages/TopicPage.aspx?topicInfection>
Stroke Center, <http://www.strokecenter.org/prof/>
Critical Care London, <http://www.lhsc.on.ca/critcare/icu/drugs/drugindex.html>
Critical care medicine tutorials, <http://www.4um.com/tutorial/#Current%20Concepts>
The Auscultation Assistant, <http://www.wilkes.med.ucla.edu/lungintro.htm>
Advanced Respiratory Assessment, <http://www.teachertube.com/files/support/908.ppt>
Mechanical Ventilation, tutorial, <http://www.ccmtutorials.com/rs/mv/>
SCCMs Pulmonary Knowledge Line, <http://www.learnicu.org/Pages/TopicPage.aspx?topicPulmonary>
Critical care medicine tutorials, <http://www.ccmtutorials.com/>
 - Surviving Sepsis Campaign, <http://www.survivingsepsis.org/Pages/default.aspx>
International Sepsis Forum, <http://www.sepsisforum.org/index.php>
Sepsis Alliance, <http://www.sepsisalliance.org/>
Global Sepsis Alliance, <http://www.globalsepsisalliance.org/>
SCCMs Hypothermia Knowledge Line,
<http://www.learnicu.org/Pages/TopicPage.aspx?topicProcedures>
Trauma.org, <http://www.trauma.org/resus/teamleader/teamleader.html>
Trauma Brain Injury Foundation, <http://www.braintrauma.org>
World Health Organizations Guidelines for Essential Trauma Care,
http://www.who.int/violence_injury_prevention/publications/services/guidelines_traumacare/en/index.html
 - Recursos-e Salut: ClinicalKey Student. Elsevier (Scopus, ScienceDirect)
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