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# STUDY ABROAD

**Clinical Simulation - Block 2**

**CARDIOPULMONARY  
RESUSCITATION IN  
ADULTS AND  
CHILDREN, CLINICAL  
ULTRASOUND AND  
TECHNICAL SKILLS**



**UMH Area of Clinical Simulation**



# 1- Basic Cardiopulmonary Resuscitation (CPR) (3 hours)

**Instructors: Eva de Miguel & Marta González.**  
**Department of Clinical Medicine**

## Objectives of CPR

1. Understand what CPR is and its importance in the survival of a patient in cardiac arrest.
2. Recognize a medical emergency: know how to identify an unconscious person who is not breathing normally.
3. Activate the emergency system: Learn how to call for help quickly and effectively.
4. Perform quality chest compressions: position your hands correctly and apply the appropriate force.
5. Use an automated external defibrillator (AED): understand how it functions and how to follow its instructions.
6. Perform the basic CPR sequence: apply the check, call, compress rule.

## Activities performed by students

- Practical demonstration: the instructor demonstrates the correct CPR sequence on a mannequin.
- Individual practice and in groups of 2: each student performs supervised chest compressions.

- Simulation with AED: learn to turn it on, place the pads, and follow its instructions.
- Simple practical cases: resolve basic scenarios (e.g., person faints on the street; cardiac arrest at a hospital).
- Quick question game: Review the key steps in CPR while together on teams.



## 2- Basic Cardiopulmonary Resuscitation (CPR) (3 hours)

**Instructor: Francisco Sánchez. Department of Pharmacology, Pediatrics and Organic Chemistry**

This simulation training enables students to gain confidence to perform pediatric cardiopulmonary resuscitation and enhance essential skills to act in emergencies.

### Objectives

- Understand the importance of CPR in pediatric patients.
- Identify the key differences between CPR in adults and CPR in children.
- Learn to assess scene safety and responses by pediatric patients.
- Learn the sequence of basic life support for children according to current guidelines.
- Practice the correct application of chest compressions and rescue breaths in children and infants.
- Learn how to utilize an automatic external defibrillator on pediatric patients.
- Improve teamwork skills during resuscitation.

### Activities performed by students

**Initial assessment of pediatric patients:** Identification of vital signs, assessment of breathing and pulse.

- **Activation of the emergency system:** determine when to call for help and how to begin resuscitation if you are both alone as well as accompanied by somebody else.
- **Thoracic compressions:** perform the correct technique in both children and infants, including the position of hands/fingers, depth, and frequency of compressions.
- **Rescue breaths:** perform mouth-to-mouth, mouth and nose with infants, and use a bag valve mask to provide effective oxygenation.
- **Use of AED in pediatrics:** proper placement of patches and administration of shocks as indicated.
- **Team coordination:** simulation of scenarios with assigned roles for improved communication and efficiency with resuscitation.
- **End of exercise and reflection:** discussion on the importance of pediatric CPR and continuous improvement of skills through practice.



**NEW BORN ANNE MANIQUÍ**

### 3- Clinical Ultrasound (3 Hours)

**Instructor: Francisco Sánchez. Department of Pharmacology, Pediatrics and Organic Chemistry**

Clinical ultrasound is a valuable tool in rapid patient assessment. For beginning and future medical students, the approach must be basic and practical, focusing on familiarization with the equipment and the identification of simple anatomical structures.

#### Objectives:

- Become familiar with the ultrasound device. Learn its basic parts (transducers, image settings, scanning modes).
- Understand the basic principles of ultrasound. Differentiate between hypoechoic, hyperechoic, and isoechoic structures.
- Learn to position and move the transducer probe correctly. Avoid common errors in the acquisition of images.
- Recognize basic anatomical structures. Visualize organs such as the bladder, liver, and heart in B-mode.
- Identify free fluid in cavities. Introduction to Focused Assessment with Sonography in Trauma (FAST).
- Apply ultrasound in basic patient assessment. Use in initial abdominal and chest scanning.

#### Activities performed by students

- **Ultrasound device operation:** turn on, select transducers, and adjust image.
- **Basic abdominal scan:** Identify the full bladder, liver, and kidneys.

- **Basic chest scan:** Visualize lung sliding.
- **Identification of free fluid:** learn to differentiate liquid in the abdomen in models and/or volunteers.
- **Use of M-mode on the heart:** observe basic movements of the left ventricle.
- **Practice in pairs:** learn to place the transducer probe on partners to enhance manual dexterity.

### 4- Diagnostic Techniques: Training on Paracentesis and Thoracocentesis

**Professor José Manuel Ramos. Department of Clinical Medicine**

Performing these procedures enable students to enhance technical skills and decision making for their future medical practice.

#### Basic concepts

- Knowledge of the anatomy relevant to paracentesis.
- Become familiar with the equipment and supplies needed to perform paracentesis.
- Identification of indications and contraindications for this procedure.

#### Objectives

Attain the skills to perform a paracentesis correctly and safety.

- Acquire the ability to properly position the patient for the procedure.
- Recognize and manage the possible complications associated with paracentesis.

### Exercises to complete

- Preparation of the equipment and work area, including hand hygiene and use of sterile gloves.
- Positioning of patient in the supine decubitus position with the head slightly elevated.
- Insert needle in correct peritoneal space, utilizing the paracentesis trainer.
- Collection of ascitic fluid and proper management of samples.
- Simulation of clinical situations to practice decision making and managing complications.

## 4.1 Training on Thoracocentesis

### Basic concepts

- Knowledge of the anatomy relevant to thoracocentesis.
- Become familiar with the equipment and supplies needed to perform thoracocentesis.
- Identification of indications and contraindications for this procedure.

### Objectives

- Attain the skills to perform a thoracocentesis correctly and safety.

- Acquire the ability to properly position the patient for the procedure.
- Recognize and manage the possible complications associated with thoracocentesis.

### Estimated number of program students: 6 - 12

- Preparation of the equipment and work area, including hand hygiene and use of sterile gloves.
- Positioning of patient in the supine decubitus position or seated, ensuring proper posture.
- Insert needle in correct pleural space, utilizing the thoracocentesis trainer.
- Collection of pleural fluid and proper management of samples.
- Simulation of clinical situations to practice decision making and managing complications.

### Estimated number of program students: 6 - 12

**This program is intended for both US university students who have either completed or are near completion of their pre-med programs as well as for students from other countries who have completed at least two years of their university medical training programs.**

### Student requirements

- **Area of knowledge: medicine**
- **Language requirements: B1 Spanish**