



SOUTH SIDE OF THE HEART

2025 20 - 21 October
ALMADA

WORKSHOPS

20TH OCTOBER

HOSPITAL GARCIA DE ORTA

02 » From Pacemakers to ICDs. The essentials of troubleshooting.

09h15 - 13h15

Welcome to this practical workshop in cardiac electronic devices !

› Target Audience:

Cardiologists, cardiology residents and fellows, cardiac physiologists and any clinician involved in the care of patients with cardiac electronic devices, namely at the emergency department.

› What to Expect?

This workshop offers a practical and accessible introduction to cardiac electronic devices. Through a combination of focused lectures, real-world cases, and hands-on training at programmer workstations, participants will learn how to interpret ECG, program and troubleshoot pacemakers, ICDs, and CRT devices in clinical practice.

› What will be covered?

Essential components of pacemakers, implantable cardioverter-defibrillators (ICD) and cardiac resynchronization therapy (CRT) devices.

Key concepts of device function including sensing, pacing and defibrillation, to guide programming optimization and identification of device malfunction.

The basic approach to ECG analysis when troubleshooting pacemakers.

How to manage ICD shocks at the emergency department.

The effects of magnets on different types of cardiac devices.



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PROGRAMA

PARTE 1

Fundamentals of cardiac electronic devices

09:15-11:00

1. Basics of electrical cardiac stimulation (20 min)

Generator and electrodes | Sensing and pacing

2. Pacemaker timing-cycles (20 min)

Single and dual channel pacemakers | Upper rate behaviour

3. Defibrillators and resynchronization (20 min)

Detection tachycardia windows | Biventricular pacing

4. WORKSTATIONS | Interactive Case-Based Device Programming

Hands-on practical session (45 min)

11:00-11:30

COFFEE BREAK

PARTE 2

Troubleshooting at the emergency department

11:30-13:15

1. Pacemaker malfunction: from surface ECG to programmer interrogation (20 min)

Oversensing and undersensing | Loss of capture

2. ICD shocks. What should I do? (20 min)

Appropriate versus inappropriate shocks

3. Recommendations for urgent non-cardiac surgery (20 min)

The magnet effect

4. WORKSTATIONS | Interactive Case-Based Device Troubleshooting

Hands-on practical session (45 min)