



**Asociación Española de
Enfermería en Cardiología**

PROFESSIONAL PROFILE OF THE ELECTROPHYSIOLOGY AND CARDIAC PACING NURSE

ACCREDITATION SYSTEM OF THE SPANISH ASSOCIATION OF NURSING IN CARDIOLOGY (SANC)

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Reviewed and endorsed by the Spanish Association of Nursing
in Cardiology (SANC) and the Heart Rhythm Association



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ABBREVIATIONS

AA	Atrial Flutter
ABPM	Ambulatory Blood Pressure Monitoring
ACT	Activated Clotting Time
AF	Atrial Fibrillation
AMI	Acute Myocardial Infarction
ANT	Assistant Nursing Technician
AT	Atrial Tachycardia
AV	Atrioventricular
BP	Blood Pressure
CCDSAP	Certified Cardiac Device Specialist for Allied Professionals
CPR	Cardiopulmonary Resuscitation
CRT	Cardiac Resynchronisation Therapy
ECG	Electrocardiogram
ECV	Electrical Cardioversion
EHEA	European Higher Education Area
EPS	Electrophysiological Studies
ESC	European Society of Cardiology
HF	Heart Failure
HR	Heart Rate
HTN	High blood pressure
ICD	Implantable cardioverter defibrillator
ICD-CRT	Defibrillator with Cardiac Resynchronisation Therapy
ILR	Implantable Loop Recorder
INT	Intranodal Tachycardia
LES	Lower Extremities
PM	Pacemaker
PM-CRT	Pacemaker with Cardiac Resynchronisation Therapy
PSA	Patient services assistant
SANC	Spanish Association of Nursing in Cardiology
SSC	Spanish Society of Cardiology
SSC	Spanish Society of Cardiology
SVT	Supraventricular tachycardia
VES	Ventricular Extrasystoles
VT	Ventricular tachycardias
WG	Working group
WHO	World Health Organisation
WPW	Wolff Parkinson White



1. BACKGROUND AND JUSTIFICATION

1.1 BACKGROUND

Nursing professionalisation has evolved, adapting to the social and health changes required by the population. At the academic level, we have gone from an eminently practical approach to seeking a deeper growth of our nursing discipline that allows us to achieve maximum development, obtaining a doctorate in Nursing, which facilitates research work and, consequently, professional development. Currently, since Organic Law 4/2007 came into force, nurses can carry out undergraduate and postgraduate studies. A commitment to the unification of higher education systems within the framework of the European Higher Education Area (EHEA)¹.

On a professional level, the scenario is more complex. A series of laws and regulations have been passed that try to regulate the most traditionally consolidated nursing specialties. In 1987, the Ministry of Education and Science, through Royal Decree 992/1987 of the 3rd of July, regulated the obtention of the title of specialist nurse (seven specialties that required prior obtention of the Diploma in Nursing)². Subsequently, Law 44/2003 of 21 November 2003 on the organisation of health professions highlighted the need for new regulation of these specialties³. Royal Decree 450/2005, of April 22, 2005, on Nursing specialties, lays the foundations for the scenario in which we currently find ourselves⁴. Article 1 of said RD states that the title of specialist nurse, issued by the Ministry of Education and Science, is official and valid throughout the territory of the State and will be necessary to expressly use the denomination of Specialist Nurse, to exercise the profession in that capacity, and to occupy jobs with that designation. Article 2 lists the seven specialties available today: Obstetric-Gynecological Nursing, Mental Health Nursing, Geriatric Nursing, Occupational Nursing, Family and Community Nursing, Paediatric Nursing, and Medical-Surgical Care Nursing⁴. The first six have already been developed, although with different levels of implementation. However, the specialty of Medical-Surgical Care Nursing has not seen the light of day after 16 years, probably due to the variability it encompasses and the difficulty in resolving the different needs and training. In our particular case, nurses with experience and training in electrophysiology and cardiac pacing would be included in this unsuccessful medical-surgical specialty. Although we still do not have a system for the recognition of the specialisation of Nursing in the field of cardiology, the recently published R.D 589/2022 on transversal training of specialties in health sciences is a new way to vindicate the need for specialisation.



1.2 ACCREDITATION IN SPECIFIC AREAS

RD 639/2015 regulates the accreditation diplomas of professionals in specific areas⁵. However, a future regulation on health training (new Royal Decree on Specialties) is currently in the consultation phase to regulate, among others, transversal training and the creation and revision of nursing specialisation degrees. This decree would help to issue diplomas in specific areas of training, access and training in these areas, and the entrance exams for training positions, being able to demonstrate the experience exercised in the functions corresponding to the specific training area. A possible solution to the lack of traceability of some of the specialties contemplated and others that have not even been developed yet.

At the European level, more progress has been made in this aspect, as the European Society of Cardiology (ESC) makes available to health professionals working in the field of Cardiac Pacing and Electrophysiology, an accreditation process that evaluates their knowledge and experience, valid for 10 years, which aims to serve as a sign of excellence of these professionals. In a parallel line of action, the European Federation of Nurses proposes a strategic plan for 2021-2027 to strengthen the status and practice of the nursing profession for the benefit of citizens and the interests of nurses in the EU and Europe. Among its objectives is the importance of having properly trained and qualified nurses to ensure patient safety.

1.3 UNMET NEEDS FROM A NURSING PERSPECTIVE

The current health system is overwhelmed by a growing population, with longer life expectancy, and a demand on health services that is difficult to control. The objective is to ensure sustainability and cost-effective health system services that allow a balance between supply and demand. In addition, circulatory system diseases continue to be the leading cause of death in our country, accounting for 24.3% of total deaths in 2020 and with a rate of 253.1 per 100,000 inhabitants⁶. Globally, an estimated 17.9 million people died from this cause in 2019, representing 32% of all deaths worldwide⁷.

Therefore, the high prevalence of cardiovascular disease is added to the growing need for nurses who can cope with this situation of sustainability of the health system. In addition, the World Health Organisation (WHO) states that regulatory interventions are needed to promote their impact and effectiveness by optimising the scope and leadership of nurses, accompanied by investments in their training, skills, and posts⁸.



In our country, this nursing situation is well described by the MAREC study, which urges cardiology nurses to be fully qualified to carry out their work in certain areas with specific competencies in advanced care⁹.

1.4 ORGANISATION AND CURRENT DEVELOPMENT OF ARRHYTHMIA UNITS AND THE SPECIALIST NURSE PRACTITIONER

Currently, in the face of the dizzying advance of technology and the increase in the population and its life expectancy, a complex scenario is presented in the hospital environment. The current reality is the presence of a greater number of diagnosed patients that simultaneously increases the demand for interventional procedures, both diagnostic and therapeutic.

In the electrophysiology laboratory, diagnostic procedures are carried out, to obtain objective data and thus carry out interventional procedures in cardiac pathologies, with maximum efficiency, safety, and comfort for the patient.

There is also an increase in activity in follow-up consultations for patients with cardiac pacing systems, technical data are monitored to supervise the correct functioning of these devices and the possible arrhythmias they could represent.

The great advances in interventional cardiology in the last 20 years and the increase in the number and complexity of these procedures, together with the increase in care quality, make it necessary to adequately train the staff of the Electrophysiology and Pacing unit, in a regulated and accredited manner.

The more specific the care the patient requires, the greater the degree of specialisation the professional needs to apply it effectively, with quality, and safely. To this end, it is essential to clearly define the roles and responsibilities of nurses in an Electrophysiology and Pacing unit, as well as the training needed to carry out these functions.

Quality in care and patient safety are the main objectives to achieve, which is why we need the commitment of governments, hospital management, and scientific societies to advance the professional development of nurses.



1.4.1 Cardiac electrophysiology

Clinical cardiac electrophysiology, and interventional electrophysiology in particular, is the cardiology discipline that deals with the study, diagnosis, and treatment of arrhythmias by recording the electrical activity, stimulation, and controlled injury of endocavitary and epicardial points, through electrocatheters usually introduced via the percutaneous vascular route¹⁰.

Since the 1980s, this branch of cardiology has undergone continuous and exponential growth accompanied by technological advances applied to medicine.

The technique accompanying ablation is complex and requires specific technology (navigation systems, specific catheters, irrigation systems, etc.), which is constantly changing to improve the accessibility and effectiveness of the technique, with greater safety for the patient.

1.4.2 Cardiac pacing

Cardiac pacing is the part of cardiology that deals with the diagnosis, treatment, and prevention of cardiac conduction problems, heart failure (HF) amenable to pacing, the search for appropriate pacing sites, and appropriate follow-up, both directly and through home monitoring¹¹.

The use of implantable cardiac devices has seen an increase similar to advances in cardiac electrophysiology. The changes in the indications included in cardiac pacing guidelines over the last few years have contributed significantly to the increase in this type of treatment: the efficacy of defibrillators in preventing sudden death, the usefulness of cardiac resynchronisation therapy (CRT) in the treatment of HF, together with the well-established pacing therapy, have fostered this true biotechnological revolution¹².

In addition, great advances have been made in the miniaturisation of devices, such as in the use and indication of wireless ventricular pacing devices, or cardiac monitoring systems using implantable loop recorders (ILR)¹³.

Likewise, other defibrillators have appeared such as subcutaneous defibrillators, developed to treat those patients who have problems with their venous accesses and those with complex congenital heart diseases, since they do not use endocavitary electrodes, which would avoid complications derived from their implantation in complex scenarios¹⁴.



1.4.3 Specialist nurse practitioner in interventional cardiac electrophysiology and pacing

The increase in the number and complexity of interventional cardiology procedures, as reported in the Recalcar study¹⁵, has led to rapid, extensive, and complex development in this area. We find a higher number of diagnosed patients and a parallel demand for interventional procedures, both diagnostic and therapeutic.

These advances demonstrate the need for continuous, regulated, and accredited training of professionals. The more specific the care required by the patient, the greater the degree of specialisation the professional needs to apply it effectively, with quality and safely. To this end, it is essential to clearly define the roles and responsibilities of the nurse in an electrophysiology and pacing unit, as well as the training needed to carry out these functions effectively¹⁶.

Nurses in this field must have knowledge of these pathologies, their treatments, and collaboration in techniques and procedures. In addition, they must maintain high levels of updating in their knowledge, since this part of cardiology is closely linked to technology and the advances are dizzying.

The role of arrhythmia nurses is widely known due to their participation in the implant and electrophysiological studies described above. The high volume of patients with intracardiac devices has led to the acquisition of even more skills, such as preventive care with face-to-face consultations and programs and the remote monitoring of devices such as the HeartLogic program, for the care of patients with worsening HF.

Different studies with a similar structure have shown that the care provided by nurses to patients with atrial fibrillation (AF) is superior to the usual care provided by only a cardiologist in terms of hospitalisation and mortality from cardiovascular causes¹⁷⁻²⁰. This evidence is reflected in the recommendations of the latest guidelines of the ESC for pacing, AF, and HF, which strongly recommend comprehensive care based on multidisciplinary teams²¹⁻²³. These preventive approaches have been equally effective once AF ablation treatment has been carried out since acting on the AF substrate with aggressive control of risk factors improves the success of ablation in the long term. These measures help control risk factors to reduce weight, improve glycaemic control, reduce lipid levels, and improve blood pressure control significantly. With respect to AF, it helps to reduce the frequency and duration of episodes, symptoms, and their severity compared with usual care, regardless of other measures such as antiarrhythmic treatments²⁴. Other studies have shown that weight loss greater than 10% is associated with a



significant reduction in episodes of AF, a greater probability of maintaining sinus rhythm, and a decrease in mortality due to arrhythmic causes²⁵. Nurses can help implement these measures in arrhythmia units.

One of the most notable and relevant advances in the work of nurses in arrhythmia units is the role played in remote monitoring, under the supervision of a cardiologist specialised in arrhythmias, and in E-Health innovation^{26,27}. Home or remote monitoring is the application of technology in a way that allows the secure transmission of data from a device implanted in a patient to arrhythmia clinics. In this way, the status of these devices can be monitored remotely effectively, efficiently, and safely. The nurse plays a fundamental role in sustaining these follow-up programs, carrying out an evaluation of the data received and managing the information in collaboration with the medical team²⁸. In addition, nurses can, with the help of technology, become a fundamental pillar in the early detection of arrhythmias such as AF with an impact on the early prevention of patients at high risk of thromboembolic complications²⁹. To adapt to the care load and new functions, it is essential to acquire specialised knowledge in this field and in the remote monitoring and check-up of devices that are not acquired in basic nursing training. As resources improve and the functions of the specialised nurse increase, the times for monitoring telematic follow-ups are also adapted, making them more efficient³⁰.

1.5 JUSTIFICATION

Scientific societies are intensifying their efforts to cement the necessary nursing specialisation, developing specialised courses, master's degrees, and professional profile documents, which guarantee the competencies, knowledge, specific skills, and levels of professional development and that serve as an endorsement before the public administrations to speed up the training process that the collective of nurses specialised in cardiology has been demanding for years. Quality is sought as the central axis of care based on scientific evidence.

For all of the above, specialised knowledge in device implantation and electrophysiological studies is required, as well as competence for the management of remote monitoring of implanted devices and E-Health programs.

The accreditation of this training is necessary to verify the knowledge and minimum requirements to be able to carry out these functions in routine clinical practice within the arrhythmia units. An accreditation system, such as the one proposed in this document, serves to define a profile of basic and specific



competencies in the field of electrophysiology and cardiac pacing, unified and agreed upon to guarantee patient care within the highest standards of quality and safety.

1.6 OBJECTIVES

This document aims to respond to the concerns of nurses who work in electrophysiology and cardiac pacing, guaranteeing their right to accredit their competence for the exercise of their functions.

Main objective:

- To describe the professional profile of the nurse specialising in electrophysiology and cardiac pacing, the training and skills that allow the development of the accreditation for this nurse, unifying the requirements for the whole of Spain.

Secondary objectives:

- To obtain recognition from all the Health Systems of the different Autonomous Communities, for the exercise of the functions related to this profile and obtain a remuneration in accordance with said profile.
- To increase the quality of care and safety in clinical practice in the care of patients to be treated in electrophysiology and cardiac pacing units
- To serve as a guide for health centres and cardiology services when selecting staff, encouraging them to acquire the necessary skills and protocolising the activities to be carried out within the different healthcare areas.
- To contribute to affording the appropriate recognition to nursing professionals with extensive training and specific skills, thus prioritising specialist nurses for certain posts.
- To contribute to ensuring the sustainability of the system and developing care models oriented towards chronicity, where one of the key components is the specialisation of the nursing staff.



2. FUNCTIONS AND COMPETENCIES OF THE NURSE IN THE DIFFERENT AREAS OF THE ARRHYTHMIA UNIT

2.1 STAFFING IN THE VARIOUS AREAS

The following is a description of the staffing required in the different units for quality care and adequate patient safety.

2.1.1 *Electrophysiology room*

The necessary staff consists of two nursing professionals since they must cover the functions of a scrub nurse, a float nurse, and an optional monitoring technician. The national average in Spain is 2.9.

2.1.2 *Outpatient consultations*

A distinction must be made between the room for Holter electrocardiogram (ECG) placement and ambulatory blood pressure monitoring (ABPM) and the room for reviewing patients with pacing and/or diagnostic devices. Depending on the centre, there will be one room for both tasks or separate rooms.

- A. Shared room:** The necessary nursing staff should consist of two people. One dedicated to Holter ECG placement and ABMP, and another for device check-ups.
- B. Nurse consultation room for device check-up/remote monitoring:** The necessary nursing staff is one to meet the needs of the room. The nurse needs a specific mastery of the operation mode of the devices and programming units and a detailed knowledge of the specific arrhythmias and treatment options available, which allows them to interrogate the devices and, when necessary, to program the device under the supervision of a responsible physician. In this way, the quality of patient care and the care necessary during the consultation are guaranteed.

2.1.3 *Multipurpose room used for tilt table tests, electrical cardioversion (ECV), and pharmacological tests*

The nursing staff should be two to meet the needs of the patient.



In all three cases, at least one of the two nurses in the room must be an expert, thus guaranteeing the quality of patient care and the necessary care before, during, and after the procedure.

2.2 DISTRIBUTION OF NURSES IN THE ARRHYTHMIA UNIT

2.3 NURSING COMPETENCIES IN THE ELECTROPHYSIOLOGY ROOM AND THE CONSULTING ROOM. DEFINITIONS

2.3.1 *General functions of the nurse practitioner*

Nursing work is broad, specific, and continuous, which requires full dedication and continuous up-to-date, and specialised training to acquire theoretical and practical knowledge.

The professionals who are part of these units must perform arrhythmia consultations, non-invasive studies, ECV, implantation of devices, follow-up of these patients, remote control, performance of electrophysiological studies, ablations of arrhythmias, research, and teaching.

Functions:

- Promote health and prevent cardiovascular risk factors.
- Comprehensive care for patients with arrhythmias.
- Provide the highest quality in the provision of non-invasive, invasive, and/or therapeutic diagnostic procedures.
- Control and follow-up of patients with implantable devices.
- Establish actions to prevent sudden death.
- Acquire the necessary knowledge to carry out their work effectively, while maintaining continuous qualification³¹.



2.3.2 *Specific functions of the nurse in the electrophysiology room: invasive procedures*

- They must have the skills to carry out their work as a fundamental part of a multidisciplinary team, often handling highly complex situations.
- They must have skills in echovascular-guided puncture for vascular access canalisation.
- They must possess extensive training in arrhythmias, handling of specific drugs, knowledge of device components such as recording systems, mapping systems or cardiac stimulators, ablation techniques and navigators, fundamentals of cardiac pacing, problem-solving skills in the event of technical difficulties, and advanced cardiopulmonary resuscitation (CPR) training.
- The roles of nurses in an electrophysiology room are broad and specialised and must continually adapt to technological advances. This entails the need for total work dedication and continuous training to guarantee comprehensive patient care and solve health problems as members of a team with efficiency, quality and safety criteria.
- Prepare a nursing care report at admission and after cardiac device implantation and record the patient's situation during the procedure and at discharge.
- The electrophysiology nurse should create training plans for new professionals and develop specific protocols for nursing practice in arrhythmia units such that they allow professional development^{32,33}.

2.3.2.1 **Competencies and distribution of nursing practitioners in an electrophysiology room**³²

There are three specific posts:

- Scrub nurse practitioner:** performs surgical washing, prepares the field, and maintains sterile conditions to assist the electrophysiologist during the procedure.
- Float nurse practitioner:** acts by providing material coverage to the scrub nurse and attends to the patient at all times. Also charged with



the administration of sedoanalgesia according to protocol or medical indication. Maintains asepsis and sterility measures without surgical washing.

- C. Monitoring nurse practitioner:** the person charged with both the patient's medical record and the electrophysiology polygraph. They handle the pacer during electrophysiological procedures and operate the programmer during cardiac device implants. They are also responsible for image handling and the proper functioning of the equipment necessary to carry out the procedure.

In all cases, a specialised electrophysiology nurse must know and handle all the functions of the three positions and of pre- and post-procedure care

2.3.2.2 Procedures performed in an electrophysiology room³⁴⁻³⁵:

- A.** Electrophysiological Procedures: Via fluoroscopy or with navigator support.

A.1. Electrophysiological studies.

A.2. Ablation of arrhythmias by radiofrequency or cryoablation

- Right AA.
- Left AA.
- Atrioventricular (AV) node ablation.
- Ventricular extrasystole (VES).
- AF.
- Wolf Parkinson White Syndrome (WPW).
- Atrial tachycardia (AT).
- Nodal reentrant tachycardia.
- Papillary tachycardias.
- Branch-to-branch tachycardias.



- Ventricular tachycardia (VT).
- Concealed accessory pathway.

A.3. Implantation of devices:

- Pacemaker (PM).
- Implantable Cardioverter Defibrillator (ICD).
- CRT.
- ILR.

2.3.2.3 Common functions in the electrophysiology room:

- Have the ability to carry out an individual, systematic, comprehensive, and multidimensional assessment of the person, family, and their environment, and develop an individualised care plan (NANDA-NIC-NOC), orientated towards the patient's self-care and autonomy.
- Protect the confidentiality of information provided by patients and preserve their privacy.
- Register in electronic clinical information systems, to improve communication among health professionals, support the decision-making of primary care professionals, for the evaluation of results, and to ensure continuity of care.
- Know and manage the protocols (preparation, during, and post-procedure) that can be applied to different patients according to their history or intervention to perform (anticoagulation withdrawal, allergy to contrast, allergy to antibiotics, etc.).
- Know, perform, and interpret the electrocardiogram, detecting abnormal patterns and acting early on them.
- Be accredited in basic and advanced CPR.
- Have basic quality knowledge (indicators, standards, clinical documentation, accreditation, clinical practice guidelines).



- Ability to assume good practices in terms of patient safety and make use of the different safety management tools (unequivocal identification, infection prevention, pressure injury prevention, fall prevention, patient handover communication, safety culture of medication use, management of blood products).

A. Pre-Procedure Activities^{32,37}

- Establish an effective therapeutic relationship with users to facilitate the appropriate coping with the situations they experience.
- Inform the patient about the procedure and resolve their doubts, creating a climate of trust at all times.
- Have accredited training in radiological protection (preferably holding the title of radiological facility operator for professionals collaborating in interventional radiology procedures).
- Know the different techniques that are performed in the electrophysiology laboratory.
- Know the indications and techniques for ECV.
- Identify and understand the electrophysiological procedure for each type of patient.
- Review the patient's medical history: indication of the procedure, medical and pharmacological treatment, personal and family history, blood tests, allergies, ECG, signed informed consents, etc.).
- Review complementary tests if required by the procedure or according to the centre's protocol: transoesophageal echocardiography, magnetic resonance imaging, etc.
- Check the correct preparation of the patient for the procedure: fasting, removal of jewellery and nail polish, removal of dental prostheses, and previous preparation of the surgical area. Shared function with the ANT.
- Know and have the ability to handle electromedical equipment: ventilator, ICD, PM, ultrasound, electrocardiograph, polygraph, radiology equipment, pressure monitor, radiofrequency source, cryoablation console, navigator, interrogator.



- Check the availability and correct functioning of emergency equipment: defibrillator, advanced cardiopulmonary resuscitation equipment, emergency drugs and pericardiocentesis equipment.
- Review the specific material for each procedure: catheters, connectors, polygraph, radiofrequency source, cryoablation console, navigator, interrogator, etc.
- Prepare the patient according to the procedure to be undergone, and the surgical table with the necessary material to carry it out, in collaboration with the ANT.

B. Activities during the procedure^{32,38}

- Ensure a safe and comfortable environment by providing the necessary information to the patient at all times.
- Manage anxiety and fear.
- Monitor the patient's hemodynamic status during the procedure, detecting early warning signs and/or symptoms.
- Know all the types of vascular accesses used in electrophysiology: arterial and venous femoral, brachial, jugular, and subclavian.
- Have the ability to identify and manage introducers, guidewires, catheters, and other devices used in the various procedures, and to detect/manage the complications associated with their use.
- Know and handle manual and mechanical haemostasis techniques.
- Know and have the ability to manage the pharmacotherapy (indications, preparation, interactions, administration, adverse effects, antidotes) associated with the different procedures: anticoagulants, analgesics, local anaesthetic, hypnotic drugs, antiarrhythmics, isoprenaline, etc. and drugs in conscious sedation, according to protocol.
- Control coagulation to obtain an optimal Activated Coagulation Time (ACT) according to the centre.
- Log the registers for each procedure. Register of activity, material, and prosthesis.



- Know and detect the complications of the procedure; vascular complications, dissection, cardiac perforation, cardiac tamponade, ventricular arrhythmias, and those associated with sedative analgesia; hypoxia, apnoea, airway obstruction, and local anaesthetics.
- Quickly and effectively assess and address actual or potential health problems that may threaten the patient's life, as well as manage potential complications and emergency situations.
- Know basic airway management.
- Manage healthcare resources with efficiency and quality criteria.

2.3.2.4 Specific functions³²

A. Monitoring technician:

- Carry out the checklist (if the centre has one) before the procedure.
- Start up the necessary equipment for the procedure: fluoroscopy, polygraph, stimulator, radiofrequency source, navigator, and cryoablation console.
- Operate the radioscopy equipment: selection of the appropriate program according to the procedure.
- Operate the arrhythmia polygraph and stimulator.
- Archive the images and electrophysiological records of the procedure according to each centre.
- Prepare the nursing report where important patient data appears, always including the vascular access used, haemostasis technique performed, and radiation dose.
- Control the consumption of material and registration of prostheses (cardiac devices).
- In case of emergency or need, they act as the second float nurse.
- In case of cardiac device implantation:



- ❑ Operate the programmer: Performing the threshold, impedance, and programming tests of the device during the implantation.
- ❑ Log the activity.
- ❑ Register the prostheses: centre's protocol.
- ❑ Specific documentation: PM card, defibrillator, etc.
- ❑ Include the implant data in the cardio-device platform according to the distribution of tasks established in the centre.

B. Float nurse:

- Canalise a peripheral venous line and/or assess the patency of the lines, if they are already available.
- Control and manage infusions.
- Canalise an arterial catheter if required by the procedure. In case of canalisation, monitor and calibrate invasive BP.
- Monitor the patient: BP, 12-lead ECG (polygraph), oxygen saturation, and defibrillation electrodes.
- Apply the radiofrequency patch.
- Place reference patches in case of navigator use.
- Assess vascular accesses.
- Administer sedoanalgesia according to medical indication or the centre's protocol.
- Administer oxygen therapy and manage the airway.
- Collaborate with the scrub nurse in the preparation of the surgical field.
- Provide the necessary material for the performance of the procedure.
- Administer heparin in case of left pathways, AT, and left VT

- Monitor ACT to obtain optimal anticoagulation doses according to the centre's protocol.
- Perform ECV during the procedure under medical indication.
- In the case of general anaesthesia or deep sedation, collaborate with the anaesthesiologist.

In the case of cardiac device implantation³²⁻³⁹:

- Prepare the implant area: wash the skin according to the centre's protocol.
- Administer antibiotic prophylaxis according to the centre's protocol.
- Monitor: ECG, non-invasive BP, and oxygen saturation.
- Oxygen therapy and infusion control.
- Place defibrillation electrodes.
- Attach the electrosurgical plate.
- Perform venography if indicated by the electrophysiologist or the doctor performing the implant.
- Administer sedoanalgesia under medical indication or according to the centre's protocol.
- Provide all the material needed for the procedure.
- Collaborate with the scrub nurse in the placement of dressings and compression bandages.
- Prepare a nursing care report at admission and after implantation of the cardiac device, record the patient's situation during the procedure and at discharge.
- Log the data in the specific laboratory database, such as the material used, accesses, medication, etc., according to the centre's protocol.

C. Scrub nurse:

- Perform surgical washing.
- Perform asepsis of the area where the vascular access will be performed.
- Prepare and set up the sterile surgical field.
- Administer local anaesthesia if medically indicated.
- Evaluate the vascular access, obtaining them in the case of delegation by the electrophysiologist.
- Collaborate with the electrophysiologist throughout the procedure.
- Move the C-arm and table to obtain the proper projections throughout the procedure.
- Act as the electrophysiologist's first assistant during diagnostic and therapeutic procedures.
- Perform haemostasis and apply percutaneous vascular closure devices when this function is delegated.
- Inform the patient about vascular access-point care.

In the case of cardiac device implantation:

- Maintain sterility throughout the procedure.
- Perform asepsis of the area where the implant will be performed.
- Set up the surgical field with the help of the float nurse.
- Check the electrosurgical unit.
- Administer local anaesthesia if medically indicated.
- Act as the implanting doctor's first assistant throughout the procedure.
- Apply dressings according to the centre's protocol.



- Apply a compression bandage according to the centre's protocol
- Conduct health education on surgical wound care.

2.3.3 Specific functions in the consultation of patients with implanted devices

2.3.3.1 Administrative and organisational functions

- Manage the different work agendas.
- Have the medical history available, as well as access to the diagnostic tests performed on the patient.
- Check the proper functioning of the different electromedical equipment (programmers, ECG device, CPR trolley, defibrillator, sphygmomanometer, etc.).
- Attend to patients by telephone.
- Review, replenish, and maintain reference material. Shared function with the ANT.
- Manage check-ups and appointments for complementary tests.
- Explain the prescribed procedures to the patient, as well as the preparation for those tests.

2.3.3.2 Specific functions in the follow-up of patients with implantable devices

There are several general functions for all of these patients:

- Assess the patient's overall state (biopsychosocial), identify needs, as well as implement the necessary interventions to solve them⁴⁰⁻⁴².
- Explain, inform, and educate the patient about the purpose of the implantation of the device, its operation, precautions, and recommendations⁴³.

Assess possible signs of complication and implement the necessary measures in each case (haematoma, seroma, dehiscence, extrusion, risk of decubitus, displacement, etc.)⁴⁴.



- Know and handle the different programmers to interrogate the different devices.

2.3.3.3 Follow-up of patients with ILR

- Explain how the various event-triggering devices work⁴⁴.
- Interrogate the device and analyse automatic and patient-triggered events.
- Identify the different brady-tachy arrhythmias.
- Identify the events produced by undersensing and oversensing and try to program the device to minimise them⁴⁵.
- Program the different parameters of the device in a personalised way and according to the needs of each patient^{46,47}.
- Prepare a nursing report with the findings and the interventions implemented after the detection of significant findings.

2.3.3.4 Implantation of the ILR by a specialised nurse practitioner

In recent years, the ILR insertion procedure has evolved markedly. It has gone from being a simple implant in a surgical area to being performed in an outpatient setting in a safe way for the patient. The technique is carried out through a minimal incision, with local anaesthesia, and in a very affordable way thanks to the kits designed for easy insertion.

The competence in minor surgery, together with the simplicity of the implant technique, allows nurses specialised in arrhythmias to assume this procedure with solvency, after adequate training and practice. Nurses must provide proof of training by the device manufacturer and the number of cases, which will depend on the protocol of each centre as well as the average volume of implants developed.

This technique is currently being implemented in different hospitals nationally and internationally with good results. Different records support the non-superiority in terms of complications of the insertion of this device by an expert nurse versus a physician⁴⁸⁻⁵².



2.3.3.5 Follow-up of patients with PM

- Perform device interrogation: Assess the programmed parameters of pacing mode, heart rate limits, amplitude and duration of the electrical impulse, detection, polarity of pacing and sensing, A-V intervals, refractory periods, frequency sensor, algorithms to decrease ventricular pacing, etc.⁵³
- Assess the state of the cables (pacing and sensing thresholds, and impedances).
- Assess the state of the battery.
- Review and analyse the different diagnostic tools (frequency histograms, incidence of arrhythmias, pacing percentages).
- Identify possible device malfunctions (capture failures, sensing, etc.).
- Program the device individually according to the needs of each patient⁵⁴.
- Assess ECG performance in patients with pacing in the conduction system for correct programming.
- Prepare a nursing report with the findings and interventions implemented after their detection.

2.3.3.6 Follow-up of the CRT patient

- Carry out a generalised and focused assessment in search of data that inform us about the patient's condition and the evolution of their HF:
 - ❑ Clinical data: (sudden changes in weight, BP, dyspnea, oedema, the presence of diaphragmatic or pectoral contractions that could be caused by extracardiac pacing—phrenic or diaphragmatic).
 - ❑ Complementary tests (echocardiography, gait test, blood tests, etc.).
 - ❑ Interrogation of the device
- Perform an ECG as a fundamental parameter to program the cardiac resynchroniser.



- Review the percentage of biventricular pacing and the incidence of atrial and ventricular arrhythmias
- Control of episodes of increased intrathoracic impedance that may indicate an accumulation of fluids in the thoracic cavity as a result of HF decompensation
- Variability: SDNN index. This statistical variable shows the variation between the R-R intervals and their increase is closely related to improvement in CRT patients⁵⁵.
- Assess programmed parameters of mode, frequencies, outputs, sensitivities, polarity, A-V intervals, refractory periods, sensor, automatic sensitivity and pacing control algorithms, etc.^{31,32}.
- Assess the state of the cables (stimulation thresholds, sensing, and impedances).
- Assess the state of the battery.
- Review and analyse the different diagnostic tools (frequency histograms, percentages of biventricular pacing, incidence of arrhythmias, etc.)^{56,57}.
- Identify possible device malfunctions (capture failures, sensing, etc.).
- Program the device individually according to the needs of each patient⁵⁵.
- Prepare a nursing report with the findings and interventions implemented after their detection.

2.3.3.7 Follow-up of patients with ICD

- Perform device interrogation: Assess programmed parameters (mode, frequencies, outputs, sensitivities, polarity, A-V intervals, refractory periods, as well as programmed therapy zones)^{58,59}.
- Assess the state of the cables (pacing thresholds and impedances and defibrillation impedance)^{57,58}.
- Assess the state of the battery and capacitor charging time.
- Know and identify normal or non-normal values of the different parameters.

- Review and analyse the different diagnostic tools (frequencies, pacing stimulation).
- Review the arrhythmias monitored and treated, and check whether or not they are being treated correctly^{60,62}.
- Programme the device on an individual basis and based on the findings⁵⁸⁻⁶².
- Identify signs of possible device malfunction (capture failures, sensing, inappropriate therapies, noise, short R-R).
- Prepare a nursing report with the findings and interventions implemented after the detection of significant events.

2.3.4 Specific Functions in Holter consultations

In the arrhythmia unit, we can place different types of Holter, we have the 24-hour continuous recording Holter up to the long-lasting Holter (approximately one month). We can also place Holters for events that can range from 24 hours to 15 days depending on the duration of the battery.

The specific functions of the nurse in the Holter consultation are as follows:

- Provide the patient with an environment of comfort, and safety and protect their privacy throughout the procedure. Shared function with the ANT.
- Check the proper functioning of the equipment before it is placed. A function that can be shared with the ANT.
- Know the different Holter devices, as well as their indication and operation⁶³⁻⁶⁵.
- Provide detailed information to the patient about the procedure. A function that can be shared with the ANT.
- Know the indication and the patient's previous history before Holter placement.
- Perform skin preparation. Shared function with the ANT.



- Know the correct placement of the electrodes, depending on the leads used and the indication of the Holter. A function that can be shared with the ANT.
- Place a system-wide fixation mechanism that reduces the appearance of artifacts as much as possible, while increasing patient comfort.
- Deliver and explain the objective and completion of the event diary, where the patient will write down: symptoms (palpitations, dizziness, loss of consciousness, etc.), events, and activities during the study, as well as the time at which they occurred. In this way, we will be able to correlate the electrocardiographic register with the events that occurred during the recording. A function that can be shared with the ANT.
- Explain to the patient the specific precautions and recommendations to be taken into account with the different types of recorders. A function that can be shared with the ANT.
- Remove the device and review the symptom calendar with the patient. Shared function with the ANT.
- Download the recording in the different software.
- Perform log filtering/analysis.
- Draw up a results report with the findings (this last point will depend on each centre, and although the final responsibility for the Holter report is the reference cardiologist, there are many centres where the nurse makes a first report that is later reviewed by the reference cardiologist).

In the case of Holters, the functions will be specified regarding monitoring patients with implanted devices.

2.3.5 Specific functions in remote follow-up consultations of patients with implantable cardiac devices

The functions of the nurse in the remote monitoring unit of patients with implantable cardiac devices are classified into two groups: inclusion of the patient in the monitoring program and review and analysis of transmissions:



A. Functions of the nurse in the inclusion of the patient in the Remote Monitoring Program:

- Assess the patient/family member and their social environment for inclusion in the remote monitoring program.
- Explain to the patient the remote monitoring system, as well as its benefits in tracking their device⁶⁶⁻⁶⁸.
- Know and collaborate in obtaining the patient's informed consent signature (industry consent and hospital-specific consent)⁶⁹.
- Educate the patient and their family about the operation of the device provided to them (transmitters, event marker, etc.) to ensure the successful sending of data from their home.
- Collect personal data and include the patient in the corresponding platform for remote monitoring.
- Know and manage the different tracking platforms currently available.
- Establish a transmission schedule for the patient on those devices and platforms that require it.
- Provide telephone numbers for direct contact with the unit and the commercial establishment to answer any questions and problems that may arise during the follow-up.
- Prepare the nursing report, recording all interventions performed.

B. Functions of the nurse in the review of transmissions performed.

- Perform triage and analysis of transmissions based on the findings⁷⁰.
- Discuss with the referring physician those transmissions that present significant events according to the protocol established in each centre (AF episodes in non-anticoagulated patients, ventricular arrhythmias, asystole, etc.).
- Periodically send information about the operation of the device to the patient.



- Prepare the nursing report and record the findings from the transmission and data of interest for the review of the next transmissions.
- Attend to patients by telephone to respond to their needs (problems with transmitters, extra transmissions, appointment management, etc.).
- Review and manage missed transmissions.

2.3.6 Functions of the nurse in the multipurpose room (ECV, tilts, and pharmacological tests)

Several tests are carried out in the multipurpose room:

- ECV of abnormal or rapid heart rhythm at sinus rhythm: AF, AA, poorly tolerated supraventricular tachycardia (SVT), VT with pulse resulting in haemodynamic impairment⁷¹.
- Tilt table or tilt-test in patients with syncope of unknown aetiology⁷².
- Pharmacological tests in the diagnosis of cardiac arrhythmias⁷³.
 - ❑ Ajmaline or Flecainide in Brugada Syndrome.
 - ❑ Isoproterenol: Long QT Syndrome and Catecholaminergic VT.
 - ❑ Adenosine or ATP in rapid tachycardia of narrow QRS.

Common functions in the room⁷¹⁻⁷³:

- Know and correctly use the electromedical equipment in the room.
- Attend to the reception of the patient. Shared function with the ANT.
- Assess the patient's level of knowledge before the procedure, encouraging them to express their doubts and try to resolve them, to improve their understanding, favouring anxiety reduction, improving the relationship of trust between the professional and the patient, and greater collaboration of the patient.
- Collect and validate the signed informed consent.



- Check fasting for at least 6 hours. Shared function with the ANT.
- Remove dentures, metal objects, etc. Shared function with the ANT.
- Check for allergies.
- Record their usual medication.
- Weigh the patient for proper calculation of pharmacological doses. Shared function with the ANT.
- Correctly monitor the patient: ECG leads, defibrillation electrodes, BP, oxygen saturation.
- Patient care: intravenous route, oxygen therapy, sedoanalgesia, drugs to be used.
- Have training in advanced CPR manoeuvres and crash carts.
- Document and record activity.

ECV functions⁷¹:

- Know the indications and techniques for electrical cardioversion.
- Check recent INR blood tests²⁻³.
- Check for correct anticoagulation in the weeks leading up to the procedure.
- Check for the persistence of the arrhythmia.
- Administer sedation according to protocol and indication.
- Collaborate with the cardiologist in the procedure.
- Check the patient's rhythm after discharge.
- Assess vital signs, respiration, and the presence of arrhythmias until the patient fully recovers.
- Monitor the level of consciousness after sedation.



- Perform ECG to record the heart rhythm.
- Log the entire procedure in the nursing records.

TiltTable Functions⁷²:

- Place the patient in the supine position on the tilt table, check the correct support of the lower extremities (LES) and support the waist and knees, to prevent falls. Shared function with the ANT.
- Monitor vital signs and intravenous line insertion.
- Perform the test and record BP, heart rate (HR), and ECG.
- Administer sublingual nitroglycerin or IV isoproterenol as prescribed by the physician.
- Know CPR manoeuvres given the probability of asystole during the procedure.
- Once the test is finished, check the patient's vital signs and general condition, until they fully recover.
- Educate the patient about hygienic dietary measures for the prevention of these situations.

Functions in pharmacological tests⁷³:

- Have the correct knowledge of drugs, dosages, and side effects.
- Monitor the patient's vital signs and intravenous line insertion.
- Perform baseline 12-lead ECG, repeating it as many times as required by the protocol and/or as indicated by the cardiologist (2nd, 3rd, and 4th intercostal spaces).
- Have CPR equipment and drug antidotes available.
- Record BP, HR, oxygen saturation, dose of the drugs administered, as well as any incident that occurs.
- Assess the patient's recovery.



2.3.7 Specific functions in the outpatient clinic

The arrhythmia unit is responsible for the diagnosis, treatment, and follow-up of patients with heart rhythm disorders.

In the arrhythmia unit, different pathologies can be diagnosed and treated:

- HTN.
- Syncope.
- Arrhythmias: WPW syndrome, AA, AF.
- Bradyarrhythmia: AV block, sinus dysfunction, requiring PM implantation.
- Patients with diseases that predispose to sudden death and who require ICD implantation.
- Patients with HF, who may need biventricular pacing implantation to delay or improve their symptoms.

Functions⁷¹⁻⁷⁵:

- Administrative:
 - ❑ Organise and prepare patient histories. Shared function with the ANT.
 - ❑ Prepare referral notes and reports for the first visit. Shared function with the ANT.
 - ❑ Facilitate requests for complementary tests as indicated by the physician.
 - ❑ Search for the results of tests requested in the electronic health record.
 - ❑ Record patients' upcoming appointments and tests in the listings. Shared function with the ANT.
 - ❑ File results in the clinic and/or send to the corresponding consultation. Shared function with the ANT.



- Healthcare:
 - ❑ Opening of the consultation room, and start up of electromedical devices and computers. Shared function with the ANT.
 - ❑ Receive the patient. Shared function with the ANT.
 - ❑ Carry out complementary tests as requested by the doctor.
 - ❑ Patient health education.

- Teaching:
 - ❑ Teaching support for new nurses in the electrophysiology and cardiac pacing units
 - ❑ Attend courses, national and international conferences, as well as training sessions.
 - ❑ Plan, execute and control the teaching-learning process in the training of nurses.
 - ❑ Participate within the multidisciplinary team in the development of procedures, protocols, and clinical practice guidelines to apply evidence-based cardiovascular care that minimises clinical variability and ensures patient and professional safety.

- Research:
 - ❑ Participate in conducting research studies and clinical trials.
 - ❑ Conduct and/or participate in research in nursing and other areas that contribute to the professional development and improvement of the health of the population.
 - ❑ Disseminate and apply research findings to help improve health-care, nursing care, and professional development.

- Various:
 - ❑ Maintain, clean, and sterilise the instruments and equipment used. Shared function with the ANT.
 - ❑ Place pharmacy, warehouse, and reprography orders.



- ❑ Replace the material used. Shared function with the ANT.
- ❑ Control expiry dates. Shared function with the ANT.

2.3.8 Nurse teaching competence in the context of electrophysiology and cardiac pacin

The nurse plays a fundamental role in training and the care of patients who require cardiac pacing therapy, whether to treat heart rhythm disorders or to improve overall heart function.

The main objective of the teaching function is the transmission of the knowledge, experience and skills of nursing practitioners specialised in electrophysiology and cardiac pacing, which must be carried out via training workshops, sessions, or webinars to update knowledge among professionals from other centres, participation in national and international scientific meetings, and participation in research projects.

The teaching role of nurses in the context of electrophysiology and cardiac pacing is essential to ensure patient safety and improve health outcomes. In this context, the role of the nurse in patient education may include the following aspects:

- **Identify the patient's educational needs:** A nurse can identify the educational needs of their patients, whether it is regarding their illness, medications, healthy lifestyle habits, or disease prevention, among other topics.
- **Patient Education:** The nurse is responsible for educating the patient and their family regarding the cardiac pacing procedure, including information about the device, how it is inserted, how it works, and how it is operated. The nurse can also provide information on how to track the device and how to perform safe daily activities with it.
- **Plan and provide education:** Once the patient's educational needs have been identified, the nurse can plan and provide the necessary education. This can include the use of handouts, educational videos, printed materials, and educational talks.
- **Collaborate with other healthcare professionals:** The nurse may also collaborate with other healthcare professionals, such as doctors and



therapists, to provide the patient with the appropriate information and education.

- **Promote continuing education:** It is important for nurses to be up-to-date with the latest trends and knowledge in their field. Promoting continuing education, whether through online courses, conferences, or seminars, is one way to ensure that you are up-to-date and offer accurate information to your patients.
- **Encourage patient involvement:** By encouraging patient involvement in their own care, the nurse can empower the patient to make informed decisions about their health. This may include encouraging patients to ask questions, express concerns, and take an active role in making decisions about their healthcare.
- **Evaluate the effectiveness of the education:** It is important for the nurse to evaluate the effectiveness of the education they provide to ensure that the patient understands and uses the information appropriately. This may include following up with the patient, observing their behaviour and results, and adjusting the education if necessary.

In summary, the teaching role of the nurse is essential to improving patient health outcomes. By identifying patients' educational needs, planning and providing appropriate education, collaborating with other healthcare professionals, promoting continuing education, encouraging patient engagement, and evaluating the effectiveness of education, the nurse can play an important role in health promotion and disease prevention.



2.4. NURSE PRACTITIONER'S EXPERIENCE AND COMPETENCE IN ELECTROPHYSIOLOGY AND CARDIAC PACING

2.4.1 Competencies in Electrophysiology

Competencies in Electrophysiology	Scrub	Float
Bradycardia EPS Diagnostics		
Tachycardia EPS Diagnostics		
Right AA Ablation		
Right AT Ablation		
INT Ablation		
Right Accessory Pathway Ablation		
Right VT Ablation		
Pharmacological Tests		
Tilt Table Test		
Defibrillation/Cardioversion Techniques		

EPS Electrophysiological study, AA atrial flutter, AT atrial tachycardia, INT intranodal tachycardia, VT Ventricular tachycardia

2.4.2 Pacing competencies

Competencies in Pacing	Scrub	Float + PSA
PM Implant		
Electrodeless PM Implant (*)		
PM-CRT Implant		
ICD Implantation		
ICD-CRT Implant		
Subcutaneous ICD Implant (*)		
Subcutaneous ILR Implant		
Injectable ILR Implant (*)		

PSA Patient services assistant, PM Pacemaker, PM-CRT Pacemaker with Cardiac Resynchronisation Therapy, ICD implantable cardioverter defibrillator, ICD-CRT implantable cardioverter defibrillator with cardiac resynchronisation therapy, and implantable Holter ILR.



2.4.3 Expert nurse practitioner in electrophysiology and cardiac pacing

Expert Nurse in Pacing	Scrub	Float + PSA
PM Implant		
Electrodeless (Micra®) PM Implant (*)		
PM-CRT Implant		
ICD Implantation		
ICD-CRT Implant		
Subcutaneous ICD Implant (*)		
Subcutaneous ILR Implant		
	Number	
PM Check-ups		
PM-CRT Check-ups		
ICD Check-ups		
ICD-CRT Check-ups		
Subcutaneous ICD Check-ups (*)		
Subcutaneous ILR Check-ups		
Remote Monitoring Check-up		
Holter & ABPM Check-ups		
EHRA Certified Cardiac Device Specialist for Allied Professionals (CCDSAP)	YES	NO
(*) If performed at your centre		

PSA Patient services assistant, PM Pacemaker, PM-CRT Pacemaker with Cardiac Resynchronisation Therapy, ICD Implantable Cardioverter Defibrillator, ICD-CRT Implantable Cardioverter Defibrillator with Cardiac Resynchronisation Therapy, ILR Implantable Loop Recorder (Holter), ABPM Ambulatory Blood Pressure Monitoring, CCDSAP Certified Cardiac Device Specialist for Allied Professionals.



3. ACCREDITATION PROGRAM

The objective of the nursing accreditation system for the teaching and practice of Electrophysiology and Cardiac Pacing is to recognise the professional competencies acquired through academic training and nursing work experience in this branch of cardiology, and in this way provide greater opportunities in professional practice.

This affords a guarantee in the improvement of the quality of care to the user who requires our services and greater safety in the healthcare provided.

The progress made over the last decade in terms of knowledge and technology in cardiac electrophysiology, and the new cardiac pacing devices, together with the dizzying development of social networks and society's access to information via the internet, leads to a demand for our services with a higher level of rigour from users, as regards training, experience, safety, and professional ethics in the development of our activities⁷⁶.

All this means that, in the professional and social interest, we have to meet certain requirements and quality criteria based on scientific evidence, which must be influential when qualifying professionals to fulfil the standards established within electrophysiology and cardiac pacing. With these, we must identify the competencies and good practices that the staff must comply with to carry out their professional activity in this branch of cardiology⁷⁷⁻⁷⁸.

THE GENERAL OBJECTIVE OF THE PROGRAM

Nursing accreditation is based on training and experience in arrhythmia units. Nurses who wish to be accredited, who work in arrhythmia units, who have an extensive professional career and specialisation in cardiac electrophysiology and, in addition, can accredit their experience with these patients for a period of dedication equal to or greater than three years, may apply for accreditation.

To do so, a report on the improvement in knowledge/skills/professional behaviours, signed by the unit supervisor and/or the head of service, will be required. To this end, you must provide a certificate of services rendered, specifying the place of work, issued by the centre where the professional activity of the arrhythmia nurse is carried out, together with a scanned copy of the qualifications accrediting specific continuous training in arrhythmias and cardiology.



SPECIFIC OBJECTIVES:

- To promote all nurses who are providing their services in the arrhythmia units of hospitals in Spain
- To achieve the provision of optimal quality services from all professionals who work in the arrhythmia units.
- To contribute to affording the appropriate recognition to the work carried out by nurses in the field of electrophysiology/pacing with extensive training and specific skills.

PARTS OF THE PROGRAM:

- Elaboration and updating of quality standards in the performance of electrophysiology and cardiac pacing procedures, aimed at evaluating and accrediting all those nurses who demand it.
- Develop an objective and rigorous system for evaluating and re-evaluating applications submitted voluntarily by nurses interested in obtaining accreditation.
- Grant an accreditation certificate with a specific validity of five years.
- Renew this certificate provided that it is voluntarily requested and the required quality requirements are met.
- Calls for applications for accreditation will be held every two years.
- The validity of the accreditation will be five years, and new merits will be required for reaccreditation.

The accreditation program included in this document is aimed at nursing staff who provide their services in the arrhythmia units of hospitals in Spain. An arrhythmia unit is understood to be one that offers its services in the field of cardiac electrophysiology and/or cardiac pacing.

That is why this accreditation document is aimed at all those nurses who work in these units, regardless of whether they are equipped with both areas or only one, and who wish to obtain accreditation to carry out their usual activity in this field.



Part of the complexity of this accreditation is the fact that it is considered a specialty in electrophysiology and cardiac pacing, both branches being closely linked to each other; however, in many centres, they are not shared. This is why many nursing professionals are great experts in electrophysiology, but they have not been able to develop their professional work in cardiac pacing and vice versa.

Consequently, and in the general interest of the staff of the arrhythmia units in carrying out a joint accreditation, it is determined that:

- Candidates for accreditation may apply jointly from both sections, electrophysiology and cardiac pacing, or just one if their professional career has developed in a centre where only one of them is exercised. If they obtain this accreditation, they will be able to opt for subsequent calls, as long as they meet the necessary requirements for the remaining part.
- Renewal will involve an independent process according to the time elapsed since the accreditation of each of the parts and following the rules established in this document (3.3.6).

3.1 ACCREDITATION PRINCIPLES⁷⁹

- **Voluntary:** The application for accreditation must be completely voluntary and must represent a recognition of the professional's work. Obtaining accreditation represents a guarantee for nurses in the development of their profession within the field of arrhythmia units.
- **Credibility and objectivity:** Compliance with the requirements via this document can be assessed objectively. This grants the necessary credit to the nursing staff who have this accreditation to carry out their professional work.
- **Uniformity:** Independent evaluation and accreditation bodies will be required to guarantee the same requirements and opportunities to all applicants who request it.
- **Independence:** The evaluation bodies must be independent, thus guaranteeing the same conditions and opportunities to all candidates who request it.



3.2 STRUCTURE OF THE ACCREDITATION COMMITTEE⁷⁹:

3.2.1 Initial committee

A provisional Accreditation Committee will be created made up of eight members of the working group, including the spokesperson of the working group (WG). This committee was conceived due to the non-existence of accredited members of the SANC Electrophysiology and Cardiac Pacing Working Group during the period of creation of this Accreditation System.

The spokesperson of the Electrophysiology and Pacing WG will propose these components, taking into account the academic and scientific merits and their professional services in either of the two fields: electrophysiology or cardiac pacing (in this case in the same number of components), or in both indistinctly.

The SANC Board of Directors will be the body charged with approving or rejecting these members for the initial committee.

In the first call, it will be essential that the members of the initial committee present themselves for the accreditation process. The SANC scientific committee will be responsible for accrediting this initial provisional committee, which will be valid for two years, after which a definitive accreditation committee will be appointed.

3.2.2 Standing Committee

3.2.2.1 Members of the Standing Committee

The standing committee will be made up of the spokesperson and five other members of the SANC Electrophysiology and Cardiac Pacing Working Group. They must meet the following requirements:

- Hold the Certificate of Nursing Accreditation in Electrophysiology and Cardiac Pacing issued by the SANC, the Section of Electrophysiology and Arrhythmias, and the Section of Cardiac Pacing of the Spanish Society of Cardiology (SSC).
- Be associated with the SANC, with a minimum of five years of service.
- Work in an arrhythmia unit (either in the area of cardiac pacing, electrophysiology, or both), with a minimum dedication of 75% of the working week.



- Have a minimum of five years of experience in the area of electrophysiology or cardiac pacing.
- Provide a curriculum vitae

The renewal of Committee members will be triennial. There may be a maximum of two simultaneous renewals. The only exception will be that of the Nursing Spokesperson, who will do so according to the general statutes of the SANC. If there are more applicants than places offered to form part of the committee, the SANC Board of Directors will be charged with selecting the candidates.

Information regarding the call will be published on the SANC website (enfermeriaencardiologia.com/electrofisiología).

3.2.2.2 Functions of the Standing Committee

- Inform of the deadline for the submission of accreditation applications.
- Evaluate the merits presented by professionals in the accreditation process.
- Establish a period of 30 working days to consider appeals filed by candidates, extendable to 60 working days if there is good cause.
- Have a register of accredited personnel, whose merits will be physically filed at the SANC offices.
- Renew this document per the rules of section 4, updating it according to new developments, needs of professionals, and modifications in current legislation.
- Organise annual meetings of committee members, at the Annual Meeting of the Electrophysiology and Cardiac Pacing Sections of the SSC.
- Constitute extraordinary meetings requested by the spokesperson, or by committee members, whenever the spokesperson considers them appropriate and justified.



3.3 ACCREDITATION PROCEDURE⁷⁹⁻⁸¹

3.3.1 Extraordinary procedure (extraordinary route)

The extraordinary accreditation procedure by the extraordinary route is designed for all those nursing professionals who are interested in obtaining accreditation and can provide reliable documentation of an extensive professional career in electrophysiology and/or cardiac pacing, and who at the time of application can certify that they are working in an arrhythmia unit.

The period of dedication in the area of arrhythmias will be a minimum of two years, providing to this end the certificate of services rendered of the corresponding unit.

The application for extraordinary accreditation will be limited to 90 calendar days from the date of publication on the SANC website.

Basic requirements for accreditation by the extraordinary route:

- Hold a University Diploma in Nursing or a Bachelor's Degree in Nursing.
- Be associated with the SANC and belong to the SANC Electrophysiology and Cardiac Pacing WG.
- Proof of two years of work experience in an arrhythmia unit, with its two branches being compatible: electrophysiology and/or cardiac pacing. In the case of centres in which rotation is carried out between the arrhythmia unit and the haemodynamics unit, four years must be accredited, demonstrating, via a certificate issued by the centre, that the percentage dedicated to both units was 50%.
- Provide a report of completion of the knowledge specified in section 2-2/2-5 of this document, signed by the specific supervisor of the arrhythmia unit (if the centre recognises this post) and/or by the person in charge of the arrhythmia unit.
- Obtain a score on the merit scale equal to or greater than **30 points**.

Recommended requirements:

- Hold the Radiological Protection qualification for professionals who carry out interventional radiology procedures.



Required Documentation:

- Duly completed application form for accreditation (see Annexe I).
- Proof of payment of the accreditation fees (amount specified in the call).
- Knowledge completion report specified in section 2-2/2-5 of this document, signed by the specific supervisor of the Arrhythmia unit (if the centre recognises this post) and/or by the head of the arrhythmia unit (format Annexe II).
- Original certificate of the services rendered, specifying the dispensing service by the centre where the activities as a nurse in electrophysiology and/or cardiac pacing have been carried out.
- Copy of the qualifications accrediting specific training in electrophysiology and/or cardiac pacing activities. qualifications that certify training in cardiology will be valid as long as they have some relationship with the field of electrophysiology and/or pacing.
- Copy of the qualifications accrediting training in Radiological Protection.

*The Personal Data Protection Law, published in article 2 of Organic Law 07/2021 of 26 May⁸², will be applied to the personal data contained in the application, which will be incorporated and processed in the automated file "Electrophysiology and Cardiac Pacing Profile" of the SANC, to be able to manage them properly. Likewise, the data of those accredited will be transferred for incorporation into the automated file corresponding to the SANC, in accordance with Law 44/2003, 26 November.

Application Procedure:

The initial committee will publish the call for candidates who request to be evaluated on the SANC website (enfermeriaencardiologia.com/electrofisiología).

All documentation collected by the candidate will be sent scanned (in PDF, JPEG, or DOC format, specifying it in each type of document), within the deadline established in the call, by email, and with the full name of the candidate, to the file upload platform specified in the call.



The spokesperson of the Electrophysiology and Cardiac Pacing WG will send an email as an acknowledgement of receipt. In this mail, the subject will be the file number assigned to each applicant that will be evaluated in its entirety by the members of the committee.

Annexe III describes the circuit that each application will follow.

The resolution of each application will be notified and published within the period and in the manner specified in the call.

During the evaluation process and whenever the SANC or the Accreditation Committee needs to compare any document, they may request the original or certified copy of said document from the applicant.

3.3.2 Ordinary procedure (standard route)

The deadline for submitting applications for accreditation will be published on the SANC website by the Accreditation Committee.

Requirements:

- Hold a University Diploma in Nursing or a Bachelor's Degree in Nursing.
- Be associated with the SANC and belong to the SANC Electrophysiology and Cardiac Pacing WG.
- Proof of two years of work experience in an arrhythmia unit, with its two branches being compatible: electrophysiology and/or cardiac pacing. In the case of centres in which rotation is carried out between the arrhythmia and haemodynamics units, four years must be accredited, demonstrating, via a certificate issued by the centre, that the percentage dedicated to both units was 50%.
- Provide a report of completion of the knowledge specified in section 2-2/2-5 of this document, signed by the specific supervisor of the arrhythmia unit (if the centre recognises this post) and/or by the person in charge of the arrhythmia unit.
- Obtain a score on the merit scale equal to or greater than **30 points**.
- Pass the training tests established and detailed in the corresponding call.



Recommended Requirements

- Hold the Radiological Protection qualification for professionals who carry out interventional radiology procedures.

Required Documentation:

- Duly completed application form for accreditation (see Annexe I).
- Proof of payment of the accreditation fees (amount specified in the call).
- Knowledge completion report specified in section 2-2/2-5 of this document, signed by the specific supervisor of the arrhythmia unit (if the centre recognises this post) and/or by the head of the arrhythmia unit (format Annexe II).
- Original certificate of the services rendered, specifying the dispensing service by the centre where the activities as a nurse in electrophysiology and/or cardiac pacing have been carried out.
- Copy of the qualifications accrediting specific training in electrophysiology and/or cardiac pacing activities. qualifications that certify training in cardiology will be valid as long as they have some relationship with the field of electrophysiology and/or pacing.
- Copy of the qualifications accrediting training in Radiological Protection.

The justification of the amount of the fees will be published in the call for applications.

*The Personal Data Protection Law, published in article 2 of Organic Law 07/2021 of 26 May, will be applied to the personal data contained in the application, which will be incorporated and processed in the automated file "Electrophysiology and Cardiac Pacing Profile" of the SANC, to be able to manage them properly. Likewise, the data of those accredited will be transferred for incorporation into the automated file corresponding to the SANC, in accordance with Law 44/2003, 26 November.

Application Procedure:

The initial committee will publish the call for candidates who request to be evaluated on the SANC website (enfermeriaencardiologia.com/electrofisiología).



All documentation collected by the candidate will be sent scanned (in PDF, JPEG, or DOC format, specifying it in each type of document), within the deadline established in the call, by email, and with the full name of the candidate to the bulk file upload platform specified in the call.

The spokesperson of the Electrophysiology and Cardiac Pacing WG will send an email as an acknowledgement of receipt. In this mail, the subject will be the file number assigned to each applicant that will be evaluated in its entirety by the members of the committee.

Annexe III describes the circuit that each application will follow.

The resolution of each application will be notified and published within the period and in the manner specified in the call.

During the evaluation process and whenever the SANC or the Accreditation Committee needs to compare any document, they may request the original or certified copy of said document from the applicant.

3.3.3 Points scale

Work experience in electrophysiology and/or pacing (depending on where your professional career was performed):

- For each year worked: 3 points. Months are counted as annual fractions (1 month: 0.25 points).
- For working in a Room Accredited by the Cardiac Pacing Section (information published in https://secardiologia.es/images/secciones/arritmias/LISTADO_CENTROS_ACREDITADOS_Y_FECHAS_20231201.pdf): 1 point.
- For working in a Room Accredited by the Electrophysiology and Arrhythmias Section (information published in: <https://secardiologia.es/arritmias/acreditacion>.) 1 point.

Maximum number of points to be acquired for work experience: 15 points in the extraordinary call; and 10 points in the ordinary call.



Training (with equal validity for Electrophysiology and Cardiac Pacing)

- Per "General Diagnostic Radiology Facility Operator Course": 2 points
- For a Radiological Protection course: 1 point

The maximum number of points accumulated in the field of radiological protection is 5 points

- Courses in the specific subject of electrophysiology and cardiac pacing:
 - 49 hours: 1 point
 - 50 to 99 hours: 2 points
 - More than 100 hours: 3 points
- Cardiology courses related to electrophysiology and pacing. Only the following topics will be considered:
 - CPR (up to a maximum of 5 points).
 - ECG and arrhythmias (up to a maximum of 5 points).
 - Pharmacology in cardiology (up to a maximum of 3 points).
 - Structural heart disease (up to a maximum of 3 points).
 - Paediatric cardiology (up to a maximum of 3 points).
 - Management of patients with HF (up to a maximum of 2 points).
 - Ischemic heart disease and acute myocardial infarction (AMI) (up to a maximum of 3 points).
- Postgraduate Courses in Cardiology: 3 points (regardless of the hours of electrophysiology and cardiac pacing content in the syllabus).
- Master's Degree in Cardiology: 6 points (regardless of the hours of electrophysiology and cardiac pacing content in the syllabus).



The training received in attendance at congresses must be accredited by a certificate signed by the issuing organisation.

These certificates will be presented in hours or credits. Credits will prevail over hours, as long as they are substantiated. If the certificate does not reflect the number of hours or credits, the minimum score will be awarded. If the training certificate is issued during the days of participation, the minimum score per day will be awarded.

Certificates of special techniques in electrophysiology and cardiac pacing are to be issued by the person in charge of the training (specific training in any subject defined in point 2.3.2.2):

- Certifications: 1 point
- Training specified in days: 0.5 points/day
- Training specified in hours: 0.5 points/hour

Research Courses:

- 10 to 49 hours: 0.5 points.
- 50 to 99: 1 point.
- More than 100 hours: 2 points.

Research grant: 10 points (All participation in clinical trials is excluded)

Attendance at congresses, conferences, and meetings:

- For each specific meeting, congress, or conference on electrophysiology and cardiac pacing (Annual Meeting of the Electrophysiology and Cardiac Pacing Section, Europace, EHRA, Cardiosim, Regional Affiliated Meetings...): 1 point.
- For each Cardiology congress not specific to electrophysiology and cardiac pacing: 0.25 points.

Training received at congresses is not counted, only attendance at the congresses.

Publications (with equal validity for electrophysiology and cardiac pacing)::

- In journals:
 - ❑ As first, last, or corresponding author: 10 points (international journal), 7 points (national journal).
 - ❑ Other authors: 3 points (international journal), 2 points (national journal).
- In books:
 - ❑ As first author: 8 points
 - ❑ Other authors: 3 points.
- Communications:
 - ❑ Lecture/teacher of cardiology courses: 7 points.
 - ❑ For each oral communication: 5 points.
 - ❑ For each Poster/Poster Forum: 3 points for first author and 1 point for other authors.
 - ❑ For each clinical case: 3 points for first author and 1 point for other authors.

3.3.4 Issuance of the accrediting certificate⁷⁹

When the corresponding Committee has evaluated each of the files admitted within the deadline, the candidate will be notified of the approval or rejection of their accreditation. In the latter case, the appropriate justification will be attached.

Within three months of notification, a certificate signed by the spokesperson of the SANC Electrophysiology and Cardiac Pacing WG, the president of the SANC, and the presidents of the Cardiac Pacing and Electrophysiology and Arrhythmias Sections of the SSC will be sent.

Once the file has been approved, the interested party will be included in the list of SANC members with the accreditation in force.



The period of validity of the accreditation qualification will be contemplated in said qualification and in the list of SANC members accredited in electrophysiology and/or cardiac pacing.

3.3.5 Accreditation periods

The calls for Accreditation in electrophysiology and/or cardiac pacing will be bi-annual.

3.3.6 Accreditation renewal

The accreditation will be valid for a period of five years, after which it may be renewed as long as there are documents that justify the continuity of the work activity in the arrhythmia unit.

The Accreditation Committee will publish the deadline for submitting applications for accreditation renewal of on the SANC website once the five years of validity after its issuance has expired.

Requirements:

- Be a member of the SANC and belong to the Electrophysiology and Cardiac Pacing WG.
- Justify that the professional activity continues to be carried out in an arrhythmia unit (by means of a certificate of services rendered specifying the destination).
- Obtain a score equal to or greater than **20 points** on the merit scale. Merits whose dates are prior to the issuance of the accreditation to be renewed will not be admitted.

Required Documentation:

- Provide a document of services rendered specifying the destination, issued by the human resources department of the hospital, by the nursing directorate, or by the relevant management.



4. RULES FOR AMENDING THIS DOCUMENT⁸³

4.1 REQUEST FOR MODIFICATION OF THE DOCUMENT

Any member of the Electrophysiology and Cardiac Pacing WG associated with the SANC may request the modification of this document as long as they request it in writing and in a justified manner.

The WG board will collect the request received in writing and send it to the accreditation committee, which will be responsible for assessing the request and studying the convenience of the modification.

The Accreditation Committee will have the power to modify the content of the Professional Profile of the Electrophysiology and Cardiac Pacing Nurse document and adapt it to the demands inherent to the evolution of our nursing discipline.

4.2 MODIFICATION PROCESS

The associated members of the Electrophysiology and Cardiac Pacing WG will be kept informed of the sections that may be modified.

Such modifications must be approved at the annual Assembly of the Electrophysiology and Cardiac Pacing Section by a simple majority. Those who are unable to attend this meeting may delegate their vote to another member or by mail, by completing the relevant proxy form that will be created for this purpose.

When this accreditation document has the support and endorsement of any other official body or non-profit scientific society, the modifications will be communicated to you through the board of the Electrophysiology and Cardiac Pacing WG.

As soon as these modifications have been concluded, they will be published on the SANC website in a full document with the amendment number and date of entry into force.



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6. ANNEXE I⁵⁸

STANDARD FORM FOR THE SANC AND ELECTROPHYSIOLOGY / CARDIAC PACING SECTIONS ACCREDITATION OF NURSING STAFF IN ELECTROPHYSIOLOGY AND CARDIAC PACING

I hereby request that my file be evaluated to obtain the corresponding accreditation from the SANC as Nursing Staff in Cardiac Electrophysiology, Cardiac Pacing, or both together.

Details of the interested party (please fill in **all** the fields):

Name: _____

Surnames: _____

DNI: _____

Contact phone: Mobile: _____ Landline (if you have one): _____

Postal address: (where the certificate will be sent once issued)

Contact e-mail: _____

SANC Membership Number: _____

Workplace (no abbreviations): _____

Application for:

- Cardiac Electrophysiology Accreditation
- Cardiac Pacing Accreditation
- Cardiac Electrophysiology and Cardiac Pacing joint accreditation.



DOCUMENTATION PROVIDED (SCANNED)

- Certificate **with** specified destination (issued by the work centre) of at least two years. In the case of centres with rotation between the arrhythmia and haemodynamics units, four years must be accredited, demonstrating, via a certificate issued by the centre, that the percentage dedicated to both units has been 50%.
- Specific knowledge assessment report (supervisor and head of section or arrhythmia unit).
- Certificate accrediting the degree of DUE or Bachelor's Degree in Nursing.
- Qualification of the training tests established and detailed in the corresponding call.
- Training auto-scale equal to or greater than **30 points**.
- Proof of payment of accreditation issuance fees.
- Certificate of the course(s) in radiological protection.
- Certificate of courses, lectures, posters, publications, grants awarded, etc.

	Auto-scale (to be filled in by the interested party)	Recognised by the Accreditation Committee (to be completed by the committee)
Total Score		

Work experience

	Years (certificates)	Applicant Points	AC Points
Cardiac Electrophysiology			
Cardiac Pacing			
Cardiac Electrophysiology and Cardiac Pacing			

For each year worked: 3 points.

Months are counted as annual fractions (1 month: 0.25 points)



For working in an Accredited Room (*)

Applicant Points	AC Points

No (0 points) Yes (1 points)

(*) Subject to publication.

TRAINING EXCLUSIVELY IN CARDIAC ELECTROPHYSIOLOGY, CARDIAC PACING, AND CARDIOLOGY

PDF/JPEG/ DOC file	Course Name	Date	Hours/Credits	Applicant Points	AC Points
TOTAL					



- Training courses in electrophysiology, cardiac pacing, and cardiology:
 - ❑ 49 hours: 1 point
 - ❑ 50 to 99 hours: 2 points
 - ❑ More than 100 hours: 3 points
- Cardiology courses related to electrophysiology and cardiac pacing: Only the following topics will be considered:
 - ❑ CPR (up to a maximum of 5 points)
 - ❑ ECG and arrhythmias (up to a maximum of 5 points)
 - ❑ Pharmacology in cardiology (up to a maximum of 3 points)
 - ❑ Structural heart disease (up to a maximum of 3 points)
 - ❑ Paediatric cardiology (up to a maximum of 3 points)
 - ❑ Management of patients with HF (up to a maximum of 2 points)
 - ❑ Ischemic heart disease and AMI (up to a maximum of 3 points)
- Master's and Postgraduate Degrees
 - ❑ Postgraduate courses in cardiology: 6 points (regardless of the hours of electrophysiology and cardiac pacing content in the syllabus).
 - ❑ Master's degree in cardiology: 3 points (regardless of the hours of electrophysiology and cardiac pacing content in the syllabus).
- Radiodiagnostic and radiological protection courses:
 - ❑ Perr "General Diagnostic Radiology Facility Operator Course": 2 points
 - ❑ For a Radiological Protection course: 1 point

The maximum number of points accumulated in the field of radiological protection is 5 points.



The training received in attendance at congresses must be accredited by a certificate signed by the issuing organisation.

- Certificates of special techniques in electrophysiology and cardiac pacing:
 - ❑ Certifications: 1 point
 - ❑ Training specified in days: 0.5 points/day
 - ❑ Training specified in hours: 0.5 points/hour

The certificates must be issued by the person in charge of the training (specific training in any subject defined in point 2.3.2.2):

- Research Courses:
 - ❑ 10 to 49 hours: 0.5 points
 - ❑ 50 to 99 hours: 1 point
 - ❑ More than 100 hours: 2 points



**PUBLICATIONS, COMMUNICATIONS, POSTERS, OR CLINICAL CASES IN THE
FIELD OF CARDIAC ELECTROPHYSIOLOGY AND CARDIAC PACING**

PDF/JPEG/ DOC file	Title of the Publication, Communication, Pos- ter, or Clinical Case	Date	Type	Applicant Points	AC Points
TOTAL					

- In journals:
 - ❑ As first, author, or corresponding author: 10 points (international journal), 7 points (national journal).
 - ❑ Other authors: 3 points (international journal), 2 points (national journal).
- In books:
 - ❑ As first author: 8 points
 - ❑ Other authors: 3 points



- Communications:
 - ❑ Lecture/teacher of cardiology courses: 7 points.
 - ❑ For each oral communication: 5 points.
 - ❑ For each Poster/Poster Forum: 3 points for the first author and 1 point for other authors.
 - ❑ For each clinical case: 3 points for the first author and 1 point for other authors.

RESEARCH GRANTS AWARDED

PDF/JPEG/ DOC file	Title: Research Grant	Date	Applicant Points	AC Points
TOTAL				

For each research grant awarded: 10 points



**ATTENDANCE AT CONGRESSES, CONFERENCES, AND MEETINGS
IN THE FIELD OF CARDIAC ELECTROPHYSIOLOGY, CARDIAC PACING,
OR CARDIOLOGY**

PDF/ JPEG/ DOC file	Name Congress, Conference, or Meeting	Specific Electrophysio- logy or Cardiac Pacing	Non-specific cardiology congress	Applicant Points	AC Points
TOTAL					

- For each specific meeting, congress, or conference on electrophysiology and cardiac pacing (Annual Meeting of the Electrophysiology and Cardiac Pacing Section, Europace, EHRA, Cardiostim, Regional Affiliated Meetings...): 1 point.
- For each Cardiology congress not specific to electrophysiology and cardiac pacing: 0.25 points.



7. ANNEXE II

EVALUATION REPORT OF SPECIFIC KNOWLEDGE IN ELECTROPHYSIOLOGY AND CARDIAC PACING

Name of the interested party _____

Mr./Ms _____ Head of Service / Electrophysiology

and/or Cardiac Pacing of _____ certifies that:

	YES/ APT	NO/NOT APT
The nurse who is the object of this accreditation covers the different jobs indistinctly, knows and performs the functions specific to the Cardiac Electrophysiology room		
The nurse who is the object of this accreditation covers the different jobs indistinctly, knows and performs the functions specific to the field of Cardiac Pacing		
I consider that the nurse who is the subject of the accreditation is apt or not apt to receive it		
I consider that the nurse subject to this accreditation has:	YES/ APT	NO/NOT APT
Sufficient knowledge with autonomy		
Extensive experience in the field		
Expert in the subject		



Techniques performed in the field of cardiac electrophysiology	YES	NO
Bradycardia EPS Diagnostics		
Tachycardia EPS Diagnostics		
Right AA Ablation		
Right AT Ablation		
INT Ablation		
Right Accessory Pathway Ablation		
Right VT Ablation		
Pharmacological Tests		
Tilt Table Test		
Defibrillation/Cardioversion Techniques		

EPS Electrophysiological study, AA atrial flutter, INT intranodal tachycardia, VT ventricular tachycardia

Techniques performed in the field of cardiac pacing	YES	NO
PM Implant		
Electrodeless (Micra®) PM Implant (*)		
PM-CRT Implant		
ICD Implantation		
ICD-CRT Implantation		
Subcutaneous Defibrillator Implant (*)		
Subcutaneous ILR Implant		
PM Check-ups		
PM-CRT Check-ups		
ICD Check-ups		
ICD- CRT Check-ups		
Subcutaneous Defibrillator Check-ups (*)		
Subcutaneous ILR Check-ups		
EHRA Certified Cardiac Device Specialist for Allied Professionals (CCDSAP) (**)		

PM pacemaker, CRT Cardiac Resynchronisation Therapy, ICD Implantable cardioverter defibrillator, ILR implantable loop recorder (Holter).



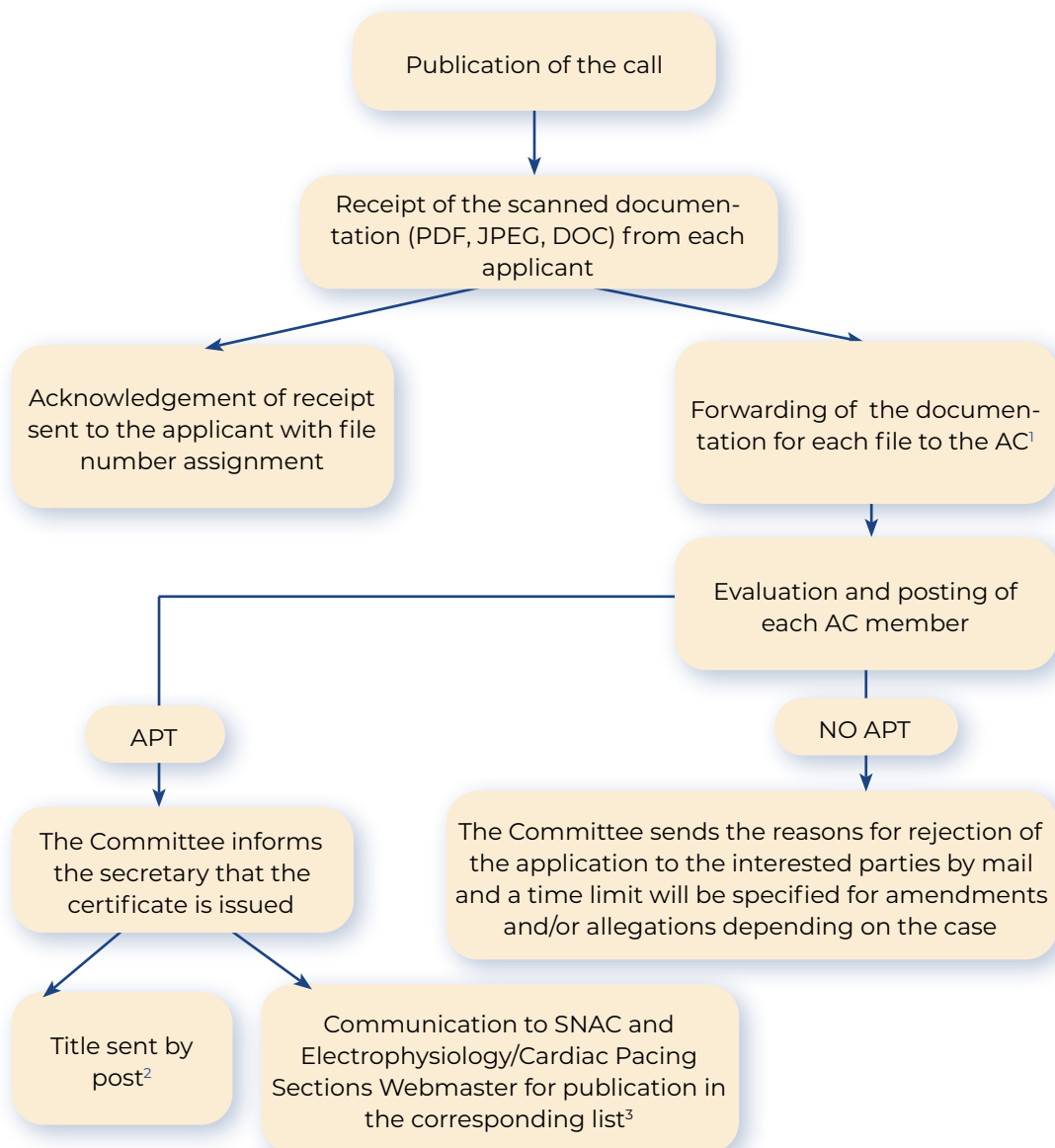
Management of nursing knowledge and techniques	YES	NO
CPR Technique		
Cardioversion/defibrillation technique		
Knowledge of cardiac arrhythmias		
Knowledge about complications in the different procedures		
Knowledge of pharmacology		
Transient pacemaker management		
Material Resource Management		
Knowledge about pre- and post-procedure care		
Completion of the report and log of the nursing care applied		

Signed _____



8. ANNEXE III

ACCREDITATION APPLICATION FLOW CHART



¹ AC accrediting committee.

² The postal address for sending the certificates will be that indicated in Annexe I.

³ The lists shall be sent within 15 calendar days after the last day of the period established for the evaluation of the AC files. The resolution of each application will be notified and published within the period and in the manner specified in the call.