PROFESSIONALS in CARDIAC SCIENCES AUSTRALIA Inc.

PiCSA

Position Statement

Australian Guidelines for entry and practice in the field of Cardiac Physiology (Adult and Paediatric)

Document Contributors

PICSA Board
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Revision History

Version	Date	Pages Revised/Brief explanation
V1	2018	
V2	Nov 2023	Revised layout, updated for clarity, inclusion of ACCP

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Abbreviations

ABPM – Ambulatory Blood Pressure Monitoring

ACCP – Australian Council for Clinical Physiologists

AHPRA – Australian Health Practitioner Regulation Agency

AP – Allied professional

ASAR – Australian Sonographer Accreditation Registry

BHRS – British Heart Rhythm Society

CCDS - Certified Cardiac Device Specialist

CDRMS- Allied Professionals Cardiac Device Remote Monitoring Specialist

CEPIA – Cardiac Electrophysiology Institute of Australia

CEPS - Certified Electrophysiology Specialist

CIED – Cardiac Implantable Electronic Device

CP – Cardiac Physiologist

CPD – Continuing Professional Development

CSANZ - The Cardiac Society of Australia and New Zealand

ECG – Electrocardiogram

EHRA – European Heart Rhythm Association

EST – Exercise Stress Testing

IBHRE – International Board of Heart Rhythm Examiners

PiCSA – Professionals in Cardiac Sciences Australia

SCT – Society of Cardiopulmonary Technology

TTT – Tilt Table Testing

Background

The Cardiac Physiology workforce comprises a diverse range of highly skilled healthcare professionals who specialise in the diagnosis and treatment of heart conditions. These professionals play a crucial role in the field of cardiology and work closely with cardiologists and other healthcare providers to assess, monitor, and treat patients with heart-related issues.

Despite the critical role that Cardiac Physiologists play in the healthcare system, there is a lack of standardised recommendations for the qualification, certification, registration, and accreditation for Cardiac Physiologists working with adult and/or paediatric patients.

These guidelines have been developed by Professionals in Cardiac Sciences Australia (PiCSA) to define the governance structure and career pathway in the Cardiac Physiology profession. They are designed to assist current Cardiac Physiologists and those aspiring to enter the profession. Additionally, this directive can serve as a guide for policymakers, employers, employees, and future professionals in the field.

The information presented in these guidelines represents an expert consensus view of Cardiac Physiologists and aligns with the standards established in healthcare professions that require registration and accreditation for practice.

This document will undergo periodic revisions, and we welcome constructive suggestions for its enhancement.

Professional Title

Individual Cardiac Physiologists may work in one or more modality. The distinct cardiac science modalities for which the title 'Cardiac Physiologist' is relevant includes:

1. General non-invasive cardiac investigations i.e., ECG, EST, TTT, ambulatory ECG (Holter) monitoring, ABPM
2. Cardiac Catheterisation Laboratory
3. Echocardiography*
4. Cardiac Implantable Electronic Devices (CIED)*
5. Cardiac Electrophysiology*

** Indicates the three modalities for which post graduate (or de facto post graduate) qualifications can be obtained, designating them as 'advanced' modalities of practice.*

In 2016, PICSA recommended the establishment of a standardised national title, 'Cardiac Physiologist,' to address inconsistency in titles and recognition among professionals working within the same field across Australia's various States and Territories. This unified title more aptly reflects the comprehensive training, depth of expertise and complexity of responsibilities associated with practitioners in the profession. Moreover, it aligns more closely with international counterparts in New Zealand and the United Kingdom.

Despite the recommendation, workplace naming conventions continue to vary across the country. These titles include, but are not limited to: Cardiac Physiologist, Cardiac Scientist, Cardiac Technician, Cardiac Technologist, Clinical Specialist, and Clinical Measurement Scientist.

Additionally, Cardiac Physiologists may appropriately refer to themselves by their specialised modality, such as 'Cardiac *Device* Physiologist' or 'Cardiac *Echo* Physiologist,' which is equivalent to the alternative titles 'Cardiac Sonographer' or 'Echocardiographer.'

For further information, refer to the PiCSA National Title Position Statement available at https://picsa.org.au/about/#core-documents.

Remuneration and Career Progression

At present, the specific functions and responsibilities of Cardiac Physiologists in Australia are not universally consistent. Variations exist based on the health industry sector, clinical service capability framework, and specific modality of practice. Professional role classifications, regulatory requirements, and remuneration frameworks additionally exhibit diversity. This has created inequity within the profession in some jurisdictions.

Like most other Allied health professions, becoming a Cardiac Physiologist starts with a relevant bachelor's degree rather than a Vocational Education and Training (VET) type qualification. PiCSA therefore strongly recommends that:

> Health industry sectors classify Cardiac Physiologists as 'health **professional** employees' (alongside dieticians, radiographers, and physiotherapists) rather than 'technical/support service employees'.

As indicated in the previous section, only three of the five specialist modalities of practice currently have an applicable advanced postgraduate (or de facto postgraduate) qualification. PiCSA regards these three advanced modalities and their respective qualifications as hierarchically equivalent and recommends that:

> Health industry sectors should establish equivalency in the regulation and remuneration framework for the three advanced modalities of practice, so that there is not a disincentive to specialise in one advanced modality versus another.

Furthermore, it is recommended that Australia work towards a career progression framework that is transferrable across different employers, states, territories, and countries.

As there is no standardised structure for career progression in Australia the following list is to serve as a starting point for further discussion and eventual consensus. Note terms below are already in use across various sectors, but currently lack consistency in their application and definition.

Early Career Cardiac Physiologist:

Entry-level professionals with **foundational skills** in cardiac assessment, patient screening, testing, and equipment maintenance. These **relatively inexperienced** Cardiac Physiologists will be working to achieve and consolidate basic standards of knowledge, competency, and independence.

Cardiac Physiologist (with modality specialisation):

At this level, Cardiac Physiologists may work independently, continuously developing a broad range of skills through experience and ongoing professional growth. They possess high-level clinical knowledge and skills and may contribute to research, education, and training activities. Individuals at this level have accumulated **significant experience** in Cardiac Physiology and may have completed or be working towards an advanced modality qualification.

Senior Cardiac Physiologist (with advanced modality specialisation):

Senior Cardiac Physiologists exhibit advanced, high-level independent practice, often with qualifications in one or more advanced modality. They possess advanced clinical knowledge and skills, demonstrate leadership qualities, and may contribute to research, education, and training activities. Those at this level have **extensive experience** as Cardiac Physiologists.

Lead Cardiac Physiologist or Senior Specialist (Consultant Practitioner):

Refers to specific expert skills that are only undertaken by a more advanced senior Cardiac Physiologist. Core components of this level include leading, developing, implementing, and evaluating strategic and operational plans; providing expert clinical knowledge and skills to improve quality of patient care and managing all other Cardiac Physiology levels. This level will have **extensive experience** and **leadership responsibilities** as Cardiac Physiologists.

Note: PiCSA's most recent "Credentialing, Scope of Practice and Competency Framework" document can be found at https://picsa.org.au/about/#core-documents. More detailed 'scope of practice' documents for each of the five Cardiac Physiology modalities are in development and will be released by PiCSA in due course.

Education

Minimum pre-entry qualifications

The Cardiac Physiology profession has seen remarkable expansion in scope, complexity, and nature, necessitating a significant change in pre-entry qualifications. As of January 2019, a relevant bachelor's degree from a recognised tertiary education provider is now a mandatory requirement.

However, prospective students may encounter a challenge in finding dedicated undergraduate programs exclusively tailored for Cardiac Physiology due to the profession's relatively low entrants per capita. To address this, students are encouraged to pursue locally available Science degrees and tailor their course selection to incorporate a major in Clinical/Human Physiology. Fields like Medical Sciences, Clinical Sciences, Biomedical Sciences, Exercise Sciences, or Health Sciences offer suitable options to equip aspiring Cardiac Physiologists with the foundational knowledge and skills they require.

Notably, the undergraduate educational prerequisites for Cardiac Physiology closely align with those of several other allied health professions, encompassing Perfusion, Vascular Science, Nuclear Medicine, Exercise Physiology, Respiratory Physiology, Sleep Physiology, and Neurophysiology, among others.

Universities are therefore encouraged to provide degree options that are designed to prepare students for a range of specialised healthcare science vocations. This approach may include offering two or three general years of shared curriculum with specialised modalities offered in a student's final undergraduate year or post-graduation.

Furthermore, individuals who have completed vocational degrees in fields like Biomedical Engineering, Nursing, Medicine, and Paramedicine will have already gained significant exposure to highly relevant content and practical experience. This background makes these professionals suitable for career transition into Cardiac Physiology.

Recommended Major/Units of Undergraduate Study:

- Human Physiology and Anatomy
- Human Pathophysiology
- Biochemistry/Pharmacology
- Biomedical Instrumentation
- Medical Physics
- Clinical Practicum Placement (240 hours or greater) in a Cardiac Physiology department.

Formal training in Cardiac Physiology

The PICSA career pathway outlines the endorsed process an individual should undertake to adequately prepare them for entry into the field, the post graduate qualifications and courses an individual can obtain to progress their career and finally the endorsed certification and accreditation requirements.

The level of on-the-job training required at each career level (as per Table 1) will vary greatly depending on the educational background of the individuals and the range and expertise of cardiac investigations offered by the facility/sector in which they are employed.

Regarding Adult versus Paediatric, it is acknowledged that while the undergraduate and postgraduate pathways are similar, on the job training differs significantly.

Cardiac Physiology Degree OR **Biomedical / Medical Science degree (with Cardiac Physiology Specialisation)** OR **General Science degree (e.g., Medical/Biomedical/ Biomedical Engineering/Exercise sciences/ Paramedicine/ Nursing)**

1-year Graduate Diploma in Clinical Physiology / Medical Technology

Student PiCSA membership +/- ASAR student registration may apply

Eligible for entry into Cardiac Physiology Profession (Adult and Paediatric)

Associate PiCSA membership, with Level 1 ACCP registration and/or ASAR student registration, progressing to
Professional PiCSA membership, with Level 2 ACCP registration and/or ASAR sonographer registration

Advanced Modalities Postgraduate Qualifications (Adult and Paediatric)

Cardiac Devices | **Electrophysiology** | **Echocardiography**

Professional PiCSA membership, with Advanced Qualification ACCP registration* and/or ASAR sonographer registration.
See table 2 for PiCSA recognised advanced qualifications, plus text for additional details

See www.picsa.org.au, www.asar.com.au and www.theaccp.org.au for details re membership and registration categories.

*Currently still termed as ACCP level 2, but under review.

Experience

The duration of experience in Cardiac Physiology investigations that is required to achieve clinical competency will vary depending upon an individual's background, learning ability, departmental/organisational requirements and services provided (including Adult versus Paediatric patient populations).

It is the consensus of PiCSA that Senior Cardiac Physiologists and Lead/Directors Physiologists will obtain at least one of the certifications/qualifications in the field of Cardiac Physiology (Table 2) as well as experience or qualifications in management, in keeping with the broader operational and professional management, supervision, training, teaching and research components these roles may entail.

Clinical Post graduate qualifications and courses

Within the Profession it is recognised that there are several advanced post graduate qualifications and courses across the three speciality modalities that enable and foster higher level knowledge and clinical skill within an individual's role.

Multi-modality training and certification is encouraged with the caveat that due to the clinical complexity of an individual modality one may choose to further develop their skill level beyond post-graduate qualification requirements including furthering advanced competency, becoming an educator, or undertaking research. As such Cardiac physiologists should, where practical, aim to work towards completing at least one of the below qualifications during their career.

Table 2: Recognised post graduate qualifications and courses for Cardiac Physiology in Australia

Specialist Modality	Qualification/Course
Cardiac Implanted Electronic Devices (CIED)	Allied Professionals Certified Cardiac Device Specialist (CCDS), International Board of Heart Rhythm Examiners (IBHRE). Allied Professionals Cardiac Device Remote Monitoring Specialist (CDRMS), IBHRE British Heart Rhythm Society Certification (BHRS) European Heart Rhythm Society Certification in Cardiac Pacing for Allied Professionals (EHRA CP/AP)
Echocardiography	Graduate Diploma of Cardiac Ultrasound CQUniversity Graduate Diploma in Cardiac Ultrasound Queensland University of Technology Graduate Diploma in Medical Sonography (Cardiac) University of South Australia Graduate Diploma in Cardiac Sonography Western Sydney University Master of Medical Sonography (Cardiac) University of South Australia Master of Cardiac Sonography Western Sydney University
Electrophysiology	Allied Professional Certified Electrophysiology Specialist (CEPS), IBHRE British Heart Rhythm Society Certification (BHRS) Graduate Diploma of Cardiac Electrophysiology, Cardiac Electrophysiology of Australasia (CEPIA)

Continuing Professional Development, Certification and Accreditation

Self-Regulation, certification, and accreditation to practice

Cardiac Physiology is a self-regulated profession. Public recognition as accredited health professionals [with associated education and Continuing Professional Development (CPD) requirements] is available through the following two registries:

1. The Australian Sonographer Accreditation Registry (**ASAR** – see www.asar.com.au for specifics on registration and CPD requirements):
    - A register of accredited Sonographers and student Sonographers, including Cardiac **Echo** Physiologists/Cardiac Sonographers.
    - ASAR registration is a requirement to practice Echo in Australia, under Medicare rules.

2. The Australian Council for Clinical Physiologists (ACCP – see www.theaccp.org.au for specifics on registration and CPD requirements)
    - A register of accredited Clinical Physiologists, including Cardiac Physiologists who work in the modalities of **ECG**, **Cath Lab**, **Cardiac Devices** and/or **Electrophysiology.**
    - ACCP registration is currently voluntary (i.e., not mandated under Medicare rules).

CPD requirements for ASAR or ACCP registration must include formal **maintenance of certification** or **recertification** where applicable. As an example, IBHRE necessitates CCDS or CEPS certified Cardiac Physiologists to partake in their "IBHRE-C3" program (https://ibhre.org/IBHRE-C3). Failure to complete this C3 program biennially leads to a certification lapse.

PiCSA strongly advocates for the accreditation and registration of every Australian Cardiac Physiologist through the ACCP and/or ASAR, in accordance with their practice modalities.

Review Summary

This document has been reviewed by the PiCSA Board, PiCSA Advisory Council, the PICSA Professional Standards Committee and The Royal Children's Hospital Melbourne. The final document has been approved by the PiCSA Board for adoption by the Association.