

Australian and New Zealand Society of Respiratory Science

POSITION STATEMENT

GUIDELINES FOR QUALIFICATIONS OF

CLINICAL RESPIRATORY LABORATORY SCIENTISTS

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Introduction

In 2009, the Australian and New Zealand Society of Respiratory Science (ANZSRS) released a position statement on Qualification Guidelines for Respiratory Scientists. In December 2016, a subcommittee was formed bringing together scientists from across Australia and New Zealand who supervise or direct the operation of clinical respiratory function laboratories and/or have significant experience training clinical Respiratory Scientists to review the 2009 guidelines. This position statement is based on the consensus opinion of the subcommittee after reviewing the: 2009 ANZSRS qualification guidelines for respiratory scientists (1), 2016 Thoracic Society of Australia and New Zealand (TSANZ) Laboratory Accreditation standards (2), 2016 ANZSRS Respiratory Function Testing competency guidelines (3) and the role of the Scientific Director/Senior Scientist as referenced in the 2017 TSANZ Medical Director position statement (4).

Traditionally, clinical respiratory function scientists have come from a range of backgrounds. There was no single undergraduate qualification available for respiratory measurement and the profession commenced as a technical role. This diversity has resulted in experienced and knowledgeable clinical

respiratory function scientists with a wide variety of formal qualifications.

These guidelines are not intended to be applied retrospectively to existing appointments, it is envisaged that they will be used prospectively;

- i) to provide a framework for career path development for junior scientists employed in clinical respiratory laboratories, and those looking to enter the Respiratory Science profession
- ii) in tandem with the 2016 TSANZ laboratory accreditation standards (2) and
- iii) where scientist registration is required.

Formal Training in Respiratory Science

All clinical respiratory scientists must either hold or be enrolled in a Bachelor of Science or equivalent. It is expected that at a minimum, this will be a three year degree course, recognised in Australia and/or New Zealand (Level 7 of the Australian Qualifications Framework (5) or the New Zealand Qualifications Framework (6)), and must include a major in the sciences including, but not limited to: health sciences, clinical sciences, physiology or biomedical sciences. International qualifications may require assessment for equivalence from appropriate government bodies.

ANZSRS competency training and assessment package

The ANZSRS competency training and assessment package has been developed to provide new scientists with the specific information and practical skills required to safely and competently perform spirometry, gas transfer and lung volumes in a clinical respiratory function laboratory. It is essential that new staff complete the ANZSRS competency training and assessment package prior to testing unsupervised within a laboratory. Details regarding this assessment tool can be found on the ANZSRS

website (3).

Certified Respiratory Function Scientist (CRFS) credential

The Certified Respiratory Function Scientist (CRFS) credential was developed by the ANZSRS to unify the knowledge of clinical respiratory function scientists. The CRFS credential, awarded following a written examination, sets a minimum standard of knowledge for clinical respiratory function scientists in Australia and New Zealand. The CRFS credential is obtained by passing an examination assessing knowledge in a wide range of areas including: respiratory system anatomy, respiratory system physiology, respiratory terminology, gas laws and correction of gas volumes, instrumentation and equipment, pharmacology, diagnostic procedures and data management (7). To be eligible to sit the CRFS examination, a minimum of 1 year full time experience in a clinical respiratory function laboratory is required. Detailed information on the CRFS credential can be found on the ANZSRS website (7).

Continuing Professional Development

Individuals should maintain a record of their continuing professional development to assist in the identification of opportunities for further development and to facilitate registration, where required, as a Clinical Respiratory Function Scientist. Examples of professional development include, but are not limited to:

- Attainment of new competencies
- Training at another laboratory in measurement techniques
- Formal higher qualifications related to employment or opportunities for future employment.
- Short courses related to employment/field of work
- Attendance at professional body conferences/congresses

In addition to acquiring experience directly relating to the investigation of respiratory function, Clinical Respiratory Function Scientists are encouraged to obtain experience in other areas that may assist in their role such as communication, critical evaluation, analytical and decision making skills, finance/accountancy and human resource management.

Clinical Respiratory Function Scientist Definitions

A Clinical Respiratory Function Scientist is a specialist scientist who works primarily in a clinical respiratory physiology laboratory. This guideline separates Clinical Respiratory Function Scientists into five classifications/levels based on education, training and experience. The categories are: Trainee Clinical Respiratory Function Scientist, Intern Clinical Respiratory Function Scientist, Clinical Respiratory Function Scientist, Senior Clinical Respiratory Function Scientist and Scientific Director/Head Scientist. The minimum recommended qualification requirements for each classification are given in detail below and in Table 1. Employing organisations must however also take into account the relevant local awards/enterprise bargaining agreements and the specific daily duties of the workplace.

Trainee Respiratory Function Scientist

Qualifications: **Mandatory** Enrolled in a recognised Bachelor of Science or equivalent

Desirable N/A

Definition: An undergraduate student currently undertaking a Bachelor of Science or an equivalent science degree. Trainee Respiratory Function Scientists perform a limited range of respiratory function tests under the constant direct supervision of a qualified and experienced Clinical

- assessment and reporting of test quality
- preparation of results for reporting
- maintenance of equipment
- participation in quality assurance programme

Senior Clinical Respiratory Function Scientist

Qualifications:	Mandatory	Bachelor of Science or equivalent
		Successful completion of ANZSRS competency assessments
		Certified Respiratory Function Scientist Credential (CRFS)
		≥ 5 years full time equivalent experience in the field
	Desirable	recognised post graduate qualifications (level 7 or higher AQF or NZQF) relevant to medical sciences from a recognised tertiary institution including, but not limited to;
		Master of Science (MSc), Master of Applied Science (M App Sc)
		Graduate Diploma in Health Administration,
		Graduate Diploma Biostatistics,
		Graduate Diploma Epidemiology,
		Master of Applied Epidemiology,
		Master of Epidemiology

Definition: A Senior Clinical Respiratory Function Scientist holds a Bachelor of Science or an

equivalent science degree and has worked in a clinical respiratory function laboratory for at least 5 years. Senior Clinical Respiratory Function Scientists work unsupervised, are involved in all aspects of respiratory function assessment and may perform complex tests requiring specialised knowledge and/or assist in the management of the respiratory function laboratory. Their skills include but are not limited to;

- supervision and training of junior scientific staff (trainee and intern)
- providing educational sessions to interns, residents and basic and advanced physician trainees as appropriate.
- assistance with laboratory management as delegated by, or in the absence of, the Head Clinical Respiratory Function Scientist / Scientific Director
- active participation in laboratory quality assurance activities and the development and review of laboratory manuals
- commitment to further professional development through either enrolment/completion of post graduate studies or regular attendance/contribution at national and international meetings/courses

Head Clinical Respiratory Scientist / Scientific Director.

Qualifications: **Mandatory** Bachelor of Science or equivalent

Successful completion of ANZSRS competency assessments

Certified Respiratory Function Scientist Credential (CRFS)

≥ 10 years full time equivalent

Desirable recognised post graduate qualifications (level 7 or higher AQF or NZQF) relevant to medical sciences from a recognised tertiary institution including but not limited to those listed under Senior Clinical Respiratory Function Scientist and/or:

Doctor of Science (DSc), Doctor of Philosophy (PhD)

Management courses (eg MBA)

Definition: A Head Clinical Respiratory Function Scientist / Scientific Director holds a Bachelor of Science or an equivalent science degree and has worked in a clinical respiratory function laboratory for at least 10 years. The Head Clinical Respiratory Function Scientist can perform all the duties of a senior scientist and has overall responsibility for the running of the respiratory function laboratory. Their duties include but are not limited to;

- recruitment and training of scientific staff working in the respiratory function laboratory
- management of overall laboratory performance including; maintaining laboratory statistics, implementation of a rigorous quality assurance program and managing the budget for their laboratory
- maintaining the laboratory to a standard for accreditation by TSANZ.
- initiating, leading or overseeing research in the respiratory function laboratory
- a commitment to further both their own and their staff members professional development

Table 1.

Guidelines for minimum education, training and experience for Clinical Respiratory Function Scientists within clinical diagnostic respiratory laboratory. See text for more detail

Classification	Mandatory† Qualifications	Mandatory † Respiratory Laboratory experience	Desirable
Trainee Respiratory Function Scientist	Currently enrolled in recognized BSc or Equivalent	N/A	N/A
Intern Respiratory Function Scientist	BSc or Equivalent	N/A	N/A
Respiratory Function Scientist	BSc or Equivalent ANZSRS Competency Assessments	> 1year FTE	CRFS
Senior Respiratory Function Scientist	BSc or Equivalent ANZSRS Competency Assessments CRFS	≥ 5 years FTE	Post graduate tertiary qualification (examples in text)
Head Scientist/ Scientific Director	BSc or Equivalent ANZSRS Competency Assessments CRFS	≥ 10 years FTE	MSc or PhD in Respiratory Science or Physiology Management courses, (examples in text)

† Mandatory requirements are not intended to be applied retrospectively to existing appointments, but used prospectively.

BSc: Bachelor of Science; MSc: Masters of Science; PhD: Doctorate; CRFS: Certified respiratory function scientist; FTE: full time equivalent; N/A: Not applicable. For full details see text.

References:

1. 2009 ANZSRS qualification guidelines for respiratory scientists
<http://www.anzsrs.org.au/index.php/publications/send/58-publications/210-guidelines-for-qualifications-of-clinical-respiratory-laboratory-scientists> Last accessed March 2018
(member content)
2. 2016 Thoracic Society of Australia and New Zealand (TSANZ) Laboratory Accreditation standards <https://www.thoracic.org.au/respiratorylaboratoryaccreditation/respiratory-function-laboratory-accreditation>. Last accessed March 2018 (member content)
3. 2016 ANZSRS Respiratory Function Testing competency guidelines at <http://www.anzsrs.org.au/index.php/education/crfs-examination> Last accessed March 2018
4. 2017 TSANZ Medical Director position statement.
<https://www.thoracic.org.au/documents/item/1027> Last accessed March 2018
5. Australian Qualifications Framework. 2013. Available at: <https://www.aqf.edu.au/aqf-qualifications>. Last accessed March 2018.
6. New Zealand Qualifications Authority. The New Zealand Qualifications Framework. Available at: <http://www.nzqa.govt.nz/assets/Studying-in-NZ/New-Zealand-Qualification-Framework/requirements-nzqf.pdf>. Last accessed March 2018
7. ANZSRS Certified Respiratory Function Scientist (CRFS) examination information <http://www.anzsrs.org.au/index.php/education/crfs-examination>. Last accessed March 2018