



New Zealand  
**Medical Radiation  
Technologists Board**  
*Te Poari Ringa Hangarua Iraruke*

## POLICY AND GUIDELINES: ONLINE EXAMINATIONS

This document sets out the policy and processes for a computer-based examination used by the Medical Radiation Technologists Board for registration and recertification purposes. Each examination is set under sections 12 and 15 of the Health Practitioners Competence Assurance Act 2003.

APRIL 2021

Policy Title	
<b>Reference Number</b>	2021-Apr-V4-MRT Exam
<b>Scope</b>	This policy primarily applies to overseas practitioners seeking registration with the Medical Radiation Technologists Board, and who do not hold an equivalent qualification. In some instances, it may also apply to registered practitioners seeking a practicing certificate after a significant absence from practice.

Associated Policy Documents	
Document Title	Reference Number
Online Examinations: Candidates Handbook	2021-Feb-V2-Exam-Candidate Handbook-2021-Online proctoring2
Competence Standards for the Practice of Medical Imaging and Radiation Therapy in New Zealand	2018-Jul-V2-MRT Competencies
Return to Practice	2021-Apr-V3-MRT Return to Practice

Revision Schedule			
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## Contents

Introduction.....	4
Policy Statement.....	4
Examination Purpose.....	6
Foundational Principles.....	6
Number of Examinations.....	6
Examination Structure and Scoring.....	7
Multi Choice Questions.....	7
Examination Length.....	7
Question Content.....	7
Question Format.....	8
Scoring.....	8
Examination Taxonomy.....	9
Examination Support Structure.....	12
ContentWriters.....	12
Number of Writers.....	12
Training.....	12
Examination Committee.....	12
Functions.....	12
The functions of the committee include:.....	12
Membership.....	13
Tenure of Appointments.....	13
Quality Assurance.....	13
Examination Fee.....	14
Examination.....	15
The Testing Environment.....	15
Supervision of examination takers.....	15
Authentication.....	15
Examination Day.....	15
Reporting Problems.....	15
Professional Conduct.....	15
Special Considerations.....	16
Examination Results.....	16
Failing an Examination.....	16
Number of Examination Attempts.....	16
The Examination Process: A Graphic Overview.....	17

## Introduction

The Medical Radiation Technologists Board (the Board) has a suite of online examinations for the purpose of registration and recertification under the Health Practitioners Competences Assurance Act 2003 (the Act).

Examinations are set for each of the five gazetted scopes of practice for the profession of medical imaging and radiation therapy:

- Medical Imaging Technologist
- Radiation Therapist
- Nuclear Medicine Technologist
- Magnetic Resonance Imaging (MRI) Technologist
- Sonographer

This document sets out the Board's policy in respect of all online examinations. A separate *Online Examinations: Candidates Handbook* is available for examination candidates through the Board's website at [www.mrtboard.org.nz](http://www.mrtboard.org.nz)

## Policy Statement

Online examinations are used to assess a practitioner's foundational knowledge in the scope of practice in which they are applying to be registered. The examination may be used for applicants whose qualification has been assessed as being non-equivalent and who do not have at least 5-years of post-qualification clinical experience.

The examination is set under sections 12 and 15 of the Health Practitioners Competence Assurance Act 2003 (the Act).

Graduates of a New Zealand qualification programme that has been accredited by the Board are not required to sit the Board's online examinations for the purpose of registration.

An online examination is used primarily for overseas-trained practitioners whose qualification has been assessed as non-equivalent.

Medical radiation practitioners who are registered with the Medical Radiation Practice Board of Australia in any of the three divisions of registration of - diagnostic radiography; nuclear medicine; radiation therapy - are exempt from sitting the examination in line with the Trans-Tasman Mutual Recognition Act (TTMRA)<sup>1</sup>

In some circumstances the Board may use a computer-based examination as a return-to-work pathway for medical imaging or radiation therapy practitioners who have not practised for an extensive period of time – that is, five years or more.

Candidates may sit a practice examination to familiarise themselves with the structure and question style of a typical examination. Questions contained in the practice examination are not included in a real-time examination. Candidates cannot access previous examinations.

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<sup>1</sup> The provisions of the TTMRA do not apply to Australian-registered practitioners wanting to register in either the Sonographer or MRI Technologist scopes of practice in New Zealand

The examination is set in English. Translated versions of the examination into another language are not available.

In addition to successful completion of an examination, practitioners must meet all other registration requirements including demonstrated competence in English language and other fitness to practise criteria. Once registered practitioners will be required to complete a period of supervised practice.

## Examination Purpose

Online examinations are used to assess a practitioner's competence by applying foundational knowledge to demonstrate safe and ethical clinical practice.

The online examinations are based on a competency-based model that focuses on the application of medical imaging/radiation therapy knowledge in a clinical environment. Questions are asked from the point of view of how knowledge is used to practise as opposed to the direct recall of that knowledge.

Questions are linked to the entry-level competencies required to practise medical imaging or radiation therapy in New Zealand as set out in the Board's *Competence Standards for the Practice of Medical Imaging and Radiation Therapy in New Zealand (July 2018)* publication.

The Board will advise candidates of the need to ensure they are familiar with the competence standards prior to sitting an examination.

## Foundational Principles

Each examination is based on an assumption that the candidate has acquired a sufficient level of base knowledge pertaining to the safe and competent practise of medical imaging and/or radiation therapy. There is a parallel assumption that the candidate has had formal training (although the qualification is not equivalent to the New Zealand standard) in the relevant medical imaging/radiation therapy practice with appropriate and adequate post-qualification clinical experience.

Examination questions are designed to assess a practitioner's ability to:

- Critically review, analyse, consolidate and synthesise knowledge; and
- Differentiate theoretical concepts, to exercise critical thinking and judgement in identifying and solving problems; and
- Use initiative and judgement in planning, problem solving and decision-making in professional practice; and
- Analyse a range of circumstances encountered in clinical practice and evaluate options to maximise patient care; and
- Adapt knowledge and skills in diverse contexts; and
- Account for professional practice and inter-professional practice

## Number of Examinations

The exam is offered four times a year. Dates, fees, and registration instructions will be published annually on the Board's website.

## Examination Structure and Scoring

Examinations are delivered through an online environment – that is, practitioners will sit at a computer terminal using online proctoring. Medical Radiation Technologists Board examinations are delivered online by Kryterion Global Testing Solutions, a leading computer-based testing company.

### Multi Choice Questions

Examinations are set in a multiple-choice question (MCQ) format where the exam taker is required to select the best possible answer from a selection of choices.

### Examination Length

The examination must be completed within a maximum period of 3-hours (180 minutes).

Candidates must allow for an additional hour to complete examination entry procedures and post-exam administration activities. This requires a candidate to allow for a total time commitment of 4-hours on the day of the exam.

### Question Content

The examination contains 150 questions which are allocated within two broad categories.

#### **1. Generic Competencies Questions (45% - 55%):**

These questions relate to the medical imaging/radiation therapy competence standards set out in Domains 1-5. Those competencies apply to all scopes of practice within the profession of medical imaging and radiation therapy.

Questions pertaining to the generic competencies are not evenly distributed across all of the generic domains. The Examinations Taxonomy sets out the percentage range of questions related to each of the generic domain competencies that are to be included in a set of examination questions.

#### **2. Scope-Specific Competencies (45% - 55%):**

These questions relate to competence standards as set out in one of the Domains from 5A to 5E. The questions are based on the competence standards for a particular scope of practice:

- 5A: Medical Imaging Technologist
- 5B: Nuclear Medicine Technologist
- 5C: Radiation Therapist
- 5D: Sonographer
- 5E: MRI Technologist

Examination questions are split 45/55% - 45/55% between the two categories of generic competencies and scope-specific competencies. For example, an examination for MRI Technologist candidates may contain 45% of questions related to Domains 1,2,3,4, and 5 with the other 55% of questions related to Domain 5E.

Questions are related to all levels of the human cycle including in-utero, neo-natal, paediatric, adult, and older adult.

## Question Format

Exam questions are mostly set within two formats:

1. Single topic question
2. Vignette or clinical scenario

All questions have four options, one of those being the correct answer and the other three incorrect answers (called *distractors*). There is only one correct answer for each question. Images and graphs may be used with some questions.

Each question is reviewed by the Education Committee for content validity and statistical reliability prior to being included into an examination.

## Scoring

An examination is scored as a *pass* or *fail*. Each correct answer is awarded one point and there is no deduction of points for wrong answers. Individual questions are not weighted and contribute equally to the candidate's examination score.

The pass score for an examination is set at a minimum of 75% in each of the two question categories - that is 75% for questions relating to generic competencies and 75% for questions relating to the scope-specific competencies. In the opinion of the Board, this sets a level that ensures candidates are capable of safe and ethical practice.

A score may be adjusted after the conduct of an examination. An example<sup>2</sup> is where a subsequent moderation of the examination identified a particular question and its answer (and/or distractors) may have been impossible to select accurately. That may have been due to the grammar or expression used, and/or there being more than one reasonable answer to the question. In such circumstances the question may be removed from the examination and marks for all candidates adjusted accordingly.

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<sup>2</sup> Please note this example is given as an illustration only



## Examination Taxonomy

The examination taxonomy sets out the percentage range of questions related to each of the competence domains, upon which each examination set is to be based.

	Common questions - Domains 1,2,3,4,5)	45-55%
	Scope specific questions - Domains 5A, 5B, 5C, 5D, 5E	45-55%
	<b>Total</b>	<b>100%</b>
<b>Common Domains</b>		<b>Questions per Exam</b>
<b>1</b>	Professional and ethical conduct	9% – 11%
<b>2</b>	Communication and collaboration	5% – 7%
<b>3</b>	Evidence-based practice and learning	1% – 3%
<b>4</b>	Radiation safety and risk management	18% – 20%
<b>5</b>	Medical imaging/radiation therapy sciences practice	12% – 14%
	<b>Total Common Domains Questions</b>	<b>45% - 55%</b>

An examination will include questions relating to one of the scope-specific practice domains:

- 5A – Medical Imaging Technologist
- 5B – Nuclear Medicine Technologist
- 5C – Radiation Therapist
- 5D – Sonographer
- 5E – MRI Technologist

Questions from a scope-specific practice domain will make up between 45% and 55% of an examination.

<b>5A</b>	<b>Medical Imaging Technologist</b>	<b>Questions per Exam</b>
	General radiography examinations	26% – 30%
	Fluoroscopy	7% - 9%
	Computed tomography	7% - 9%
	Mammography	2% - 4%
	Safe management of radiation	2%
	Quality control	1%
	<b>Total Medical Imaging Technologist Specific Questions</b>	<b>45% - 55%</b>
<b>5B</b>	<b>Nuclear Medicine Technologist</b>	<b>Questions per Exam</b>
	Preparation and assessment of radiopharmaceuticals	5% - 7%
	Biodistribution of radiopharmaceuticals including therapies	3% - 5%
	Routine nuclear medicine imaging (may include PET)	20% - 24%
	Computer tomography	5%
	Nuclear medicine radioisotope examinations	4% - 6%
	In vivo and in vitro laboratory procedures	2%
	Nuclear medicine radioisotope therapies	2%
	Nuclear medicine quality control	1%
	Radiation and radioactivity safety	2%
	Consultation and reporting	1%
	<b>Total Nuclear Medicine Specific Domain Questions</b>	<b>45%-55%</b>

<b>5C</b>	<b>Radiation Therapist</b>	<b>Questions per Exam</b>
	Immobilisation/positioning devices	4% - 8%
	Treatment simulation techniques	13% - 15%
	Treatment planning	13% - 15%
	Treatment techniques	13% - 15%
	Radiation and radioactivity safety	2%
	<b>Total Radiation Therapy Specific Domain Questions</b>	<b>45% - 55%</b>
<b>5D</b>	<b>Sonographer</b>	<b>Questions per Exam</b>
	Principles and clinical applications of ultrasound	13% - 15%
	Ultrasound examinations	20% - 24%
	Judgement and decision-making	8% - 12%
	Consulting and reporting	1%
	Quality control	1%
	Infection control	2%
	<b>Total Sonographer Specific Domain Questions</b>	<b>45% - 55%</b>
<b>5E</b>	<b>MRI Technologist</b>	<b>Questions per Exam</b>
	Principles and applications of MRI	13% - 15%
	MRI examinations	20% - 24%
	Consulting and reporting	1%
	MRI safety	10% - 14%
	MRI quality control	1%
	<b>Total MRI Technologist Specific Domain Questions</b>	<b>45% - 55%</b>

## Examination Support Structure

The Board appoints content writers to assist with the development of examination questions. The Examinations Committee oversees the setting, monitoring, and review of each examination.

### Content Writers

Examination questions are developed by Board-appointed clinicians and educationalists who are qualified and registered medical imaging and/or radiation therapy practitioners with a high level of clinical and/or educational expertise.

Writers develop questions using the Board's *Competence Standards for the Practice of Medical Imaging and Radiation Therapy in New Zealand (July 2018)* as a guide to ensure questions are related to the relevant practice.

All questions are referenced to a relevant academic/literature resource.

### Number of Writers

The number of content writers available to the Board at any time needs to be sufficient to enable the continuing development of questions to ensure optimal levels of question banks for each scope of practice.

### Training

Content writers must attend Board training modules and are required to abide by a confidentiality agreement. The Board will offer at least one training day each year to ensure there is an adequate and appropriately skilled pool of content writers available.

### Examination Committee

The Board has appointed an 8-member Examination Committee which is responsible for the oversight of an examination. The Committee is to ensure each examination assesses the minimum level of applied knowledge for competent and safe professional practice in the relevant scope of practice.

### Functions

The functions of the committee include:

- Monitor the processes and procedures for exam question development to ensure the creation of a significant bank of exam questions.
- Ensure the exam question bank is sufficiently broad and effective to maintain a robust method of assessment.
- Ensure the exam meets the parameters of being an assessment of contemporary professional and ethical medical imaging and radiation therapy practice and is in alignment with the Board's competencies standards.
- Review and revise the question bank to improve the efficiency and effectiveness of questions.
- Consider analytical reports provided by MSS and adjust exam results as required.

## Membership

At least two members are current sitting professional members of the Medical Radiation Technologists Board and at least one member is external to the medical imaging and radiation therapy profession. At least one member will have experience in developing examinations or assessment of professional competencies.

Committee members include senior members of the medical imaging and radiation therapy profession and/or New Zealand tertiary education providers with the latter having experience and knowledge in the core competencies required for registration in the profession, including experience in training, teaching, and assessment of professional competencies.

All Committee members are appointed by the Board and are required to sign confidentiality and conflict of interest agreements.

## Committee Chair

A Committee Chair is appointed by the Board and must be a current member of the Board.

The role of the Committee Chair is to:

- Chair meetings
- Develop agendas for Committee meetings
- Ensure meeting minutes are recorded
- Act as the Committee spokesperson to the Board
- Be the primary point of contact with Medical Sciences Secretariat (MSS) staff in respect of Committee work

## Examiner-in-Chief

The Committee will make recommendations to the Board for two Committee members to be designated as Examiners-in-Chief.

Examiners-in-Chief are responsible for:

- Ensuring that all questions are developed in accordance with the Board's *Online Examinations* policy
- Approval of all questions included in the exam question bank
- Approval of the format and content for each scheduled examination

## Tenure of Appointments

Committee members are appointed for a 2-year term. Committee membership is to be reviewed every two years.

## Quality Assurance

Each examination question is scrutinised and approved by the Examination Committee before being added to an examination questions bank.

The Committee also undertakes a moderation review after each examination to assess question reliability and validity. This may result in amending the results for all candidates who sat a particular examination.

## Examination Fee

Examination candidates are required to pay a fee prior to registering for an examination. The examination fee was gazetted by the Board following a public consultation process. The fee was set at a level estimated to cover the annual running costs for administration of the Board's online examinations and based on assumption of an average of fifty (50) examinations per year. The online examination fee can be found under 'fee schedule' on the Board's website [www.mrtboard.org.nz](http://www.mrtboard.org.nz).

## Examination

### The Testing Environment

The examination is taken using the Kryterion's Webassessor application for Online Proctored exams. Candidates sitting a Board examination are required to have access to a computer and a reliable internet connection. Before sitting the examination, they are required to ensure their computer meets the hardware and software requirements.

### Supervision of examination takers

The examination is overseen by trained and certified online proctors who follow standard operating procedures to deliver high-stake exams.

Examination supervisors cannot answer questions related to examination content.

### Authentication

At the time the candidate registered for the examination and sets up their computer they create their biometric profile and when they take the examination this checked again to ensure authentication. During the examination, the candidate is monitored by the online proctor to ensure compliance with the online examination conditions.

### Examination Day

Examination candidates are provided with detailed information on what to expect on the day of their examination in the Board's publication, *Online Examinations: Candidate Handbook*.

### Reporting Problems

Examination candidates are responsible for immediately notifying the online proctor of any computer problems, noise disturbance or other distractions that may affect their ability to take the exam. Failure to do so, may not be accepted as mitigating circumstances after the exam.

If the issue is not resolved by the online proctor and the candidate believes it will affect the outcome of their exam, the candidate must notify the online proctor before logging out of the examination application and must request an issue report to be filed.

### Professional Conduct

Examination candidates are subject to rules of ethical and professional conduct. Failure to comply with the rules of the examination or any instruction of the online proctor may be regarded as a breach of professional conduct.

Candidates are required to sign an *Examination Rules Agreement* prior to registering for an examination on the Kryterion website. The agreement will be included in the information sent to the candidate advising they are required to sit an online examination to be considered for registration. The candidate is required to return the signed agreement along with confirmation of their examination fee payment prior to being issued with a voucher that enables them to register for an examination on the Kryterion website (Webassessor).

## Special Considerations

Special considerations may be available to candidates who are unable to sit or complete an exam due to exceptional circumstances beyond their control. Candidates may be given an opportunity to re-sit the examination at the next available date without incurring an additional exam fee.

Special consideration is not a means for circumventing the Board's usual examination process.

Details of what may constitute a special consideration is set out the Board's publication *Online Examinations: Candidate Handbook*.

## Examination Results

Examination results are to be provided approximately three weeks after the candidate has sat the examination. This period is required to analyse results and conduct psychometric assessment, to ensure the exam is fair, valid and reliable.

Results are reported as a *pass* or a *fail* and are sent directly to the candidate via email.

## Failing an Examination

Failed candidates will receive limited feedback indicating domains where exam performance suggests additional focus and preparation should be applied.

If a candidate does not pass the exam after a total of three attempts, the Board is of the general view that they are not able to apply foundational knowledge and concepts to the minimum level required for safe practice.

The candidate would subsequently be advised of a proposal to decline their application for registration. In accordance with the Health Practitioners Competence Assurance Act 2003, the candidate will have an opportunity to be heard in respect of that proposal.

## Number of Examination Attempts

A candidate can take an examination up to a maximum of three attempts (that is, first exam and up to two re-sits). The candidate is required to pay the full examination fee for each attempt.

A first examination must be taken within the 12-month period from the date of the candidate being advised an examination is required. Any re-sits must be taken within the 12-month period after the first examination taken by the candidate. There must be a gap of at least 3-months between each examination re-sit.

Each re-sit examination will be different from the previous exam(s) taken by the individual candidate.



## The Examination Process: A Graphic Overview

