



MIAP1

2016

MEDICAL IMAGING ADVISORY PANEL 1

Policies & Procedures Manual

Computerised Tomography



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Computerised Tomography Introduction

Computed Tomography has undergone significant technical advances since the introduction of multi-slice technology more than 10 years ago. Undergraduate courses teach anatomy, physiology and CT instrumentation. During the professional development year, the new graduate learns the basic clinical applications and is able to perform simple exams such as non-contrast brain and abdominal imaging. An entry-level radiographer will have the skills to develop appropriate protocols for basic CT examinations of the head, chest and abdomen.

Historically, CT has been considered part of general radiographic practice, however since the introduction of helical and multi-detector CT the range and complexity of CT examinations has increased exponentially. Extensive additional training and clinical experience in CT is required before a radiographer can competently perform the wide range of examinations plus the development of new protocols and scan techniques routinely performed in most institutions.

To recognise the advances in CT technologies and the advancing role of radiographers, The Medical Imaging Advisory Panel 1 (MIAP1) proposes that a Computed Tomography (CT) certification program is implemented to recognise the significant additional skills and training radiographers are required to obtain to ensure optimal examination quality and patient safety. This proposed certification program consists of 2 levels. The first is the intermediate practitioner level, which acknowledges the competencies developed in the professional development year and develops new skills learnt in the first 2-5 years of clinical CT practice. The proposed second stage is that of an advanced CT practitioner. This recognises the advanced skills and knowledge that are obtained after a significant number of years of CT experience.

The certification program will contain both examination and clinical components. Clinical competency will be assessed by the applicant's supervisor and form part of the program. This will be done by the use of a checklist that identifies the competencies required for specific examinations.

Certification of the CT Practitioner

MIAP1 held a Pilot Study which was conducted in February 2012 to assess the appropriateness of the intermediate level exam. This was a worthwhile exercise with exams now held twice a year.

The Medical Imaging Advisory Panel 1 (MIAP1) now set and maintains the standards for certification of CT practitioners.

Legislation

All radiographers in Australia under the terms of the Medical Radiation Practice Board Australia (MRPBA), must operate within their "scope of Practice" This means that additional training and expertise may need to be acquired to operate equipment or perform procedures competently.

MIAP1

The Medical Imaging Advisory Panel 1 is made up of 10 volunteers who donate their time, knowledge and experience to ASMIRT and the progression and development of medical imaging.



Certification Policies

Certification Eligibility

Intermediate Level Certification

CT Intermediate Level Certification comprises a theoretical (part A) and a clinical component (part B). CT Intermediate Level Certification is awarded to persons who have successfully completed part A and part B. Both part A and part B must be completed by the candidate within a 3-year period.

Part A – Theoretical Component. Is a written examination set by MIAP1, which involves a paper not exceeding 150 multiple-choice questions covering topics such as: CT anatomy (including vascular and muscular skeletal), CT radiation and physical principles as well as applications.

For further information regarding the CT Intermediate Level Certification Examination, please see Page 7 of this document.

Part B – Clinical Component. Requires the candidate's supervisor to acknowledge completion of 500 clinical CT examinations. These 500 examinations must have taken place within a 12-month period. This period must have occurred within the 3 years prior to application submission.

The clinical CT examinations must include a variety of examination types. A total of 10 examination types have been identified. A radiographer must have performed exams in 7 out of 10 categories:

- Head/brain
- Neck
- Chest (including HRCT)
- Abdomen (including multi-phase liver, pancreas and kidney)
- Extremities
- Trauma
- Intervention
- Paediatric
- CTA
- Spine

Table 1.

CT Intermediate Level Certification Requirements.

	Eligibility Requirements	Time to Acquire	Certification Duration	Extension
Intermediate Level Application	Part A - Undertake Intermediate Level Certification Examination. Part B - Complete 500 clinical CT examinations.	Part A and Part B must be completed within a 3-year period. Application submission must occur within 3-years of sitting Part A examination.	3-year expiry for Level 1 Certification.	N/A

Intermediate Level Application Lapsed	If application submission does not occur within 3 years of undertaking Intermediate Certification Examination, applications must re-sit Intermediate Certification Examination.
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Intermediate Level Certification Renewal

Renewal of CT Intermediate Level Certification requires completion of 1000 clinical CT examinations over a 3-year period. This period must have occurred immediately prior to application submission.

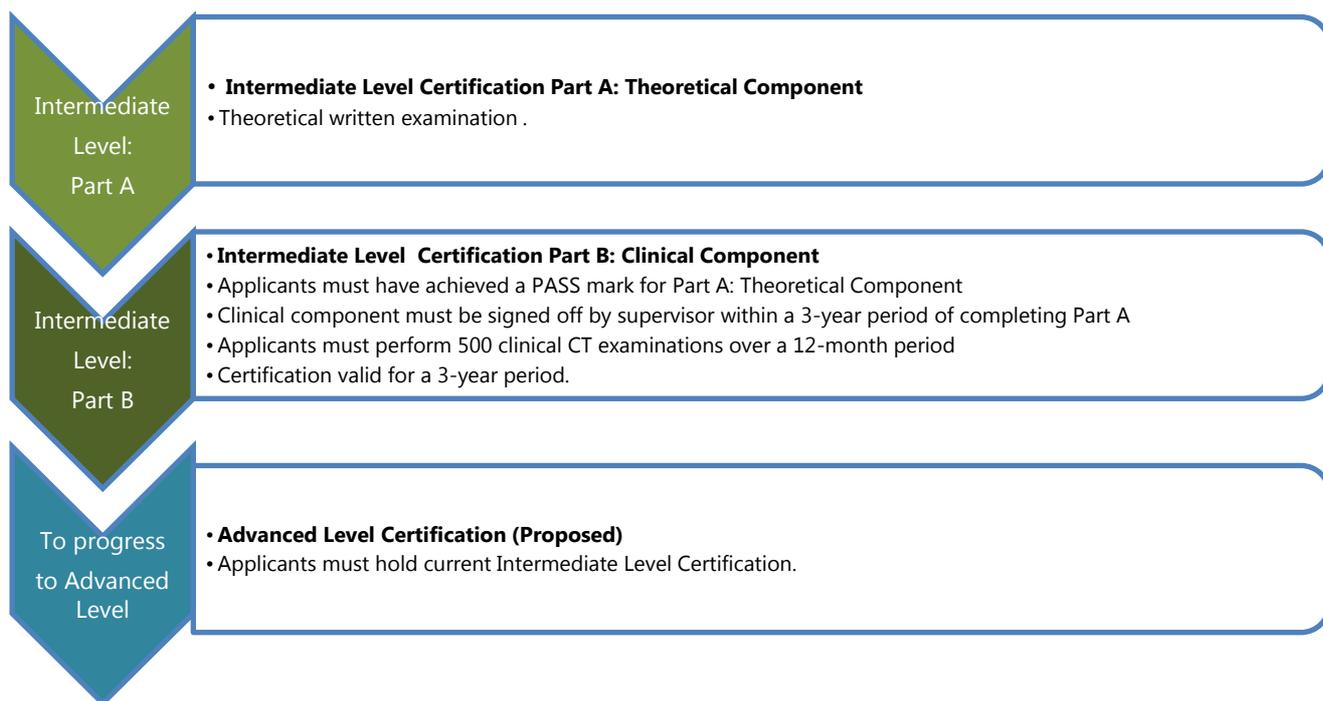
Renewal submissions must be received by the Secretariat no later than 6 months after expiry of previous CT Intermediate Level Certification. If this timeline is not adhered to, Certification will be deemed as expired and participants will be required to reapply and complete both part A and part B.

Table 2.
CT Intermediate Level Certification Renewal Requirements.

	Eligibility Requirements	Time to Acquire	Certification Duration	Extension
Intermediate Level Renewal	Complete 1000 clinical CT examinations.	1000 clinical CT examinations must be completed within a 3-year period. This 3-year period must have occurred immediately prior to application submission.	As for Level 1 Application. 6-month grace period for lapsed Level 1 Certification.	Apply before Level 1 Certification expiry.
Intermediate Level Renewal Lapsed	Re-sit Intermediate Level Certification Examination. Complete 500 clinical CT examinations.	Must be completed within a 3-year period.	As for Intermediate Level Application.	N/A



Figure 1.
Process of Application for CT Intermediate Level Certification.



Signatory on Part B of Intermediate Level Certification Applications

The Supervisor CT Radiographer is defined as a practitioner who holds MRPBA registration, appropriate radiation licenses and has a minimum of 5 years' experience in medical imaging with at least 2 years of full time equivalent CT experience.

These practitioners represent the minimum standard of practitioner which is able to be signatory on Part B of CT Intermediate Level Certification applications.

Supervisors are preferably practitioners who hold CT certification.

Certification Length

CT Intermediate Level Certification has a 3-year expiry from date of issue by MIAP1. Renewed CT Intermediate Level Certification will coincide with the original date of issue and will also have a 3-year expiry.

Practitioners who pass the theoretical written examination (part A) have a 3-year period to apply for their CT Intermediate Level Certification.

Certification Renewals

Notification of a forthcoming Certification expiry will be emailed 4 months prior to the expiry date. This email will contain a link to the MIAP1 policies and procedures/renewal guidelines and application form. Renewals will only be sent to practitioners who are current financial members of ASMIRT (this includes Professional Members and Non-Member CPD participants) and is dependent on registered email address being maintained by the member.

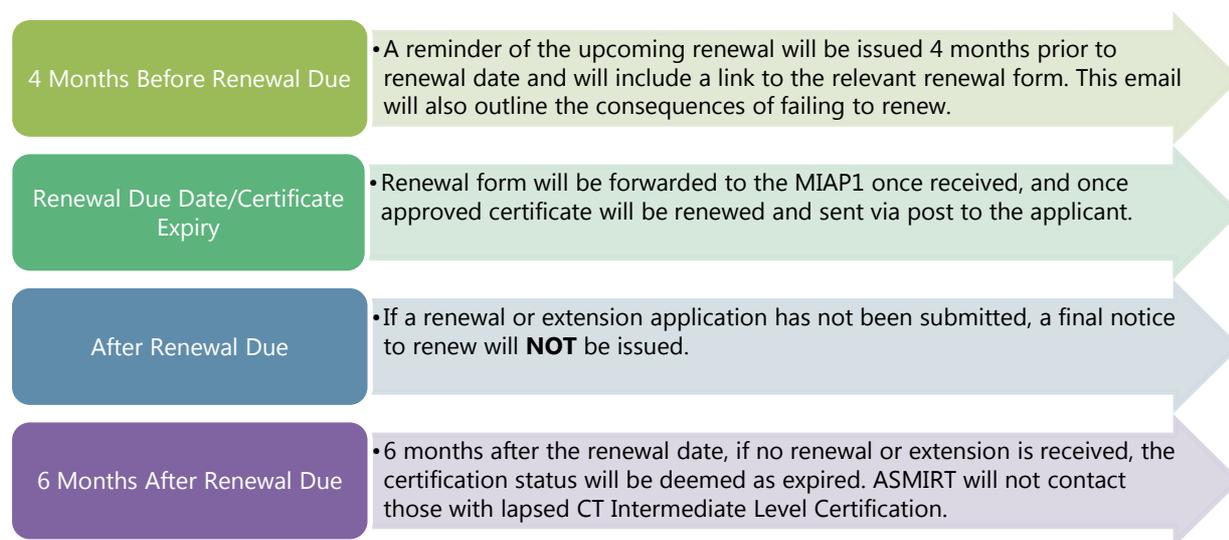
If the practitioner fails to return the renewal application form for CT Intermediate Level Certification, a final notice will **NOT** be issued. Practitioners must ensure that their details are current and up to date in their member profile. Those who are not members or enrolled in ASMIRT's CPD program and have a lapsed CT Intermediate Level Certification will **NOT** be contacted by ASMIRT with a renewal notice.

If practitioners neglect to renew their CT Intermediate Level Certification within 6 months of the expiry date, their certification will be deemed lapsed by MIAP1.

Practitioners with lapsed CT Intermediate Level Certification are expected to follow the procedures outlined under Certification Eligibility. Lapsed certification cannot be re-instated without the candidate correctly following all of the outlined criteria for a CT Intermediate Level Certification application (see Page 4 of this document).

Figure 2.

Outline of the Renewal Process for CT Intermediate Level Certification.



Extensions

Practitioners who are unable to fulfil the requirements of renewing their CT Intermediate Level Certification before the renewal due date are able to apply for a CT Intermediate Level Certification Extension. Supporting documentation **must** be attached to the application for review by MIAP1 (Doctor's certificates, letter from employer, Statutory Declaration etc).

Extension applications will be assessed on a case-by-case basis by MIAP1. The extension period granted is at the discretion of MIAP1.



CT Intermediate Level Certification

Part A: Theoretical Component - Written Examination

CT Intermediate Level Certification Examination

The theoretical written examination involves a paper not exceeding 150 multiple-choice questions covering topics such as: CT anatomy (including vascular and muscular skeletal), CT radiation and physical principles as well as applications.

The approximate percentage of questions (rounded down) related to each module is listed below:

- Module 1: Anatomy & Pathology 20%
- Module 2: Physical principles, hardware and artefacts 30%
- Module 3: Contrast agents, radiation protection and dosimetry 20%
- Module 4: CT technique 30%

To be successful in the theoretical written examination, an overall pass requires 75% or more correct answers overall, with no less than 65% in any one module. Failure to score 65% in every module will result in an overall fail.

After the conclusion of the examination, the results are tabled and reviewed by the MIAP1. Once this has undergone rigorous scrutiny, the MIAP1 sign off on the results, which are then sent back to ASMIRT.

CT Intermediate Level Certification examination results are posted online 6 weeks post examination at <http://www.asmirt.org/ct.php>, listing candidates who have passed. Results are listed using the unique Candidate ID number, which is issued to all registered candidates.

Letter correspondence outlining pass or fail result is sent to all candidates who have sat the examination. Candidates who fail receive a breakdown of their results for each section presented in the following form (see Table 1).

Table 3.

Example of results breakdown provided to candidates who fail the theoretical written examination.

PART A	PART B	PART C	PART D
Pass	Fail	Fail	Pass

Given their popularity, CT examinations are on a first come, first serve basis. Selected examination venues hold a maximum capacity which varies from state to state. Therefore once the maximum capacity has been reached applicants will go onto a waitlist.

We recommend that to avoid disappointment, individuals send in their applications early if they intend on sitting the examinations on the advertised dates. Please note that no applications will be accepted once the application closing date has passed.

The theoretical written examination is currently held twice a year in each state. Practitioners who live at a distance greater than 150km from the hosting city may request to sit the exam under the supervision of an independent person acceptable to ASMIRT (see Supervisor's Declaration Form at <http://www.asmirt.org/ct.php>).

Examination Supervisor

Examination Supervisors must hold employment from an approved occupational group (e.g. the occupational groups approved to endorse Australian passport photographs). Supervisors should not have any direct professional or personal relationship with the candidate. Where possible they should not be their direct supervisor. They must not be related to the candidate by birth, marriage, de facto or same sex relationship, or live at the candidates' address. The examination supervisor must be approved by ASMIRT. Examination supervisors must sign the supervisor's declaration form acknowledging commitment to upholding the integrity of the examination process.

Candidates who live at a distance greater than 150km from the hosting city may request to sit the examination at their own location. Candidates will be required to submit an application form to the ASMIRT Secretariat and a supervisor will be nominated for them. If an ASMIRT nominated supervisor is not available, the candidate will be contacted for suggested names of supervisors. ASMIRT will review the suggested names and select an appropriate independent person acceptable to ASMIRT for supervision purposes.

By signing the supervisor's declaration, examiners are agreeing to ensure that the examinations are conducted fairly, ethically and professionally. It is an expectation that as a supervisor, these principles are upheld and the integrity of the certification examinations are maintained.

Examination Venues

Examination venues must be an officially sanctioned venue eg. a workplace under the direct supervision of an examination supervisor. Supervisors are required to closely supervise candidates and be present in the examination room whilst the examination is in progress.

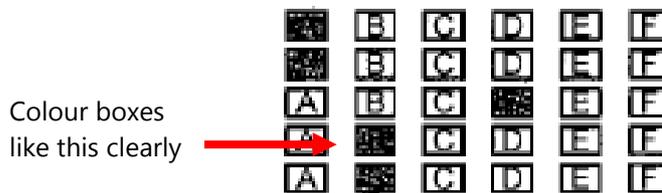
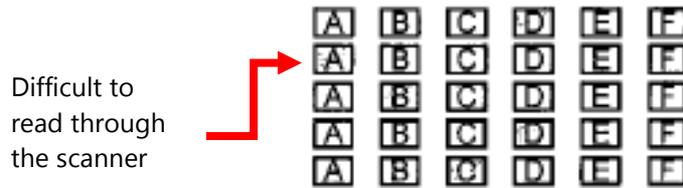
Examination Procedures

1. Examinations are scheduled for a 3-hour period from 9.00am – 12.00pm. Candidates are asked to arrive at their examination venue at least 15 minutes prior to the examination start time to ensure that they are present prior to the commencement of the examination. Candidates are reminded to be cognisant of their fellow candidates sitting this examination.
2. Late arrivals – if candidates arrive within the first 30 minutes of the examination commencement, they will be permitted to continue the examination in the remaining time.
3. Arrivals post-30 minutes of the advertised examination start time will result in an ineligibility to sit the examination.
4. Candidates are required to bring a form of photo ID and their allocated unique candidate ID number to the examination.
5. No reading material is permitted in the examination room.
6. All notes, booklets and answer sheets are not to be brought into the examination room.
7. Candidates are to exit the examination room as quietly as possible so as not to disturb fellow candidates.
8. Bring a soft lead pencil with spares, eraser and pencil sharpener to the examination.
9. Multiple-choice questions – responses are to be marked on the **Response Bubble Sheet** provided by the exam supervisor. Responses to be recorded as per the following examples:

1. A B C D E F
2. A B C D E F

It is of vital importance that the boxes are clearly marked across the entire box.

Examples from exams:



10. The above effect can be achieved by using a dark, soft pencil (2B or HB). If candidates are using an eraser to correct an answer, they must ensure that the correct answer is clear and defined.
11. Pens or other permanent markers are not to be used on Response Bubble Sheet – candidates must be able to modify their responses, if they need to, prior to the end of the examination.
12. Candidates may be escorted out of the examination if the behaviour displayed is not conducive to the professional conduct of the examination.
13. At the conclusion of the examination, candidates must ensure that their name and unique candidate ID numbers are clearly written on the Response Bubble Sheet and examination paper. Candidates are to remain quietly seated until their examination paper has been collected and the supervisor concludes the examination. Candidates are not to remove the examination material from the examination room.

Special Consideration

On the day of the examination

If a candidate experiences extenuating circumstances preventing their attendance at the examination venue, including illness, they should contact ASMIRT or their state MIAP1 representative in writing within 2 working days of the examination. Candidates may be considered for a refund.

Supporting documentation

Candidates will need to provide one or more of the following documents to support their application for refund consideration:

- Medical certificate or letter from a medical professional,
- Death notice or certificate and evidence of relationship,
- Police report,
- Statutory declarations from employer or relevant people,
- Notification from:
 - Defence services,
 - Juries Commissioner's Office,
 - Emergency service organisations such as the Country Fire Authority.

Medical/professional certificates must state that candidates were unfit to sit the examination or complete work for assessment **on** or **before** the relevant date, and cannot be signed by a member of the candidate's family.

Certification Procedures

Assessments

CT Intermediate Level Certification applications and renewal applications are received by the Secretariat and forwarded to the MIAP1 Chair for assessment. This process can take up to 8 weeks from the date that the Secretariat receives a practitioner's application. A CT Intermediate Level Certification application will be dated from the date that the application was approved by the MIAP1 Chair. CT Intermediate Level Certification renewal applications will be dated from the original date that the application was approved by the MIAP1 Chair.

Incorrect Applications

Practitioners who provide incorrect information on any application form will be emailed and/or have their application returned to them with notification querying the information provided and a list of information that needs to be reviewed by the practitioner and the Supervisor.

Extension Applications

Applications for extensions to CT Intermediate Level Certification are received by the Secretariat and forwarded to the MIAP1 Chair for review and assessment. This process can take up to 6 weeks and practitioners will be notified by email of the outcome, and extension time granted if applicable.

Current Application Forms

Practitioners must ensure that current application forms are submitted to ASMIRT or applications will not be accepted.



FAQ's

Do I have to sit the CT Certification Examination to work as a CT radiographer in Australia?

No, however passing the examination and being part of the ASMIRT CT Intermediate Level Certification program is an indication of your knowledge and commitment to your speciality within the Medical Imaging profession. This certification is not a qualification like a Master's degree which has no clinical requirement, but rather a program that ensures a level of knowledge that is measurable and common across Australia.

How much study do I have to do to pass the examination?

A cursory glance at the resource material and study guide suggests that this exam must be approached with a great deal of study and preparation. The examination is designed to test your clinical and academic ability. It is an indication of a knowledge base when measured against your colleagues. A study approach similar to any advanced program is suggested.

What percentages of candidates pass the exam?

This varies slightly, but on average more than 50% pass each exam. ASMIRT does not keep records on candidates who re-sit.

Do I have to join the 3-year Certification Program?

No, this is not a requirement as you may decide that passing the examination is adequate to demonstrate your abilities. There is however a limited time after passing the examination to join the program. If you choose to not join the certification program within the three year time period, and, change your mind down the track, you may be required to re-sit the Intermediate Level examination again.

Why do I have to renew my Certification?

The program is designed to ensure that you complete a certain number of clinical examinations within a time period to maintain your skill and knowledge base. We encourage practitioners to maintain their certification to demonstrate their specialist professional practice standard. If you choose not to renew your certification after the three year time period, you will need to commence the process again from the CT Intermediate Level 1 examination and CT clinical examinations.

Why are the examinations held at the same time nationally?

The CT Intermediate Level Certification exam is held twice yearly at the same time nationally. This is to avoid collusion. Up till now they have been held on a Saturday, but there a plan to hold one of next year's (2017) examinations on a Sunday. This is so that candidates who are unable to sit on a Saturday for personal reasons are given a choice.

Can I sit the examination a day earlier, as I have other engagements on the scheduled examination date?

No, this is not possible. We suggest that you undertake the examination at the next scheduled examination date.



I live 2 hours away from the scheduled examination centres. Is it possible to sit this examination closer to home?

MIAP1 recognise that individual practitioners have circumstances which prevent them from travelling to their closest examination venue. In these circumstances, if you live in an area remote to the listed examination venues (greater than 150km), you may be able to sit the examination in your local region. It is incumbent upon the practitioner to find an appropriate examination supervisor.

On application, the MIAP1 panel will assess the suitability of the venue and also the examination supervisor before confirming acceptance of the application.

I have already performed over the 500 CT examinations over a 6-month period. Am I able to get my supervisor to sign my application form for the 6-month period, or do I have to wait for the 12 months to lapse or just reach over 500 examinations before I submit my application?

500 CT clinical examinations will satisfy the clinical component criteria. You can submit your application signed off by your supervisor as soon as you have achieved a successful result on your theoretical component.

Is there formal paperwork for part B of the CT Intermediate Certification? Can the 500 examinations be retrospective, or must a log be kept? Will I only be given the information if I successfully pass the Part A examination?

Once the examination has been successfully completed, you may apply for CT Intermediate Certification. The application will ask for information about the numbers and range of examinations performed. The 500 exams can be retrospective.

There is no need to keep a formal log. It is expected that candidates can produce some type of data to support the numbers provided if required.

In smaller departments such as ours where we do around 3200 CTs per year it will be difficult for anyone to maintain their certificate and still rotate enough people through CT to keep up competencies for our on call service. Are these clinical examination numbers final?

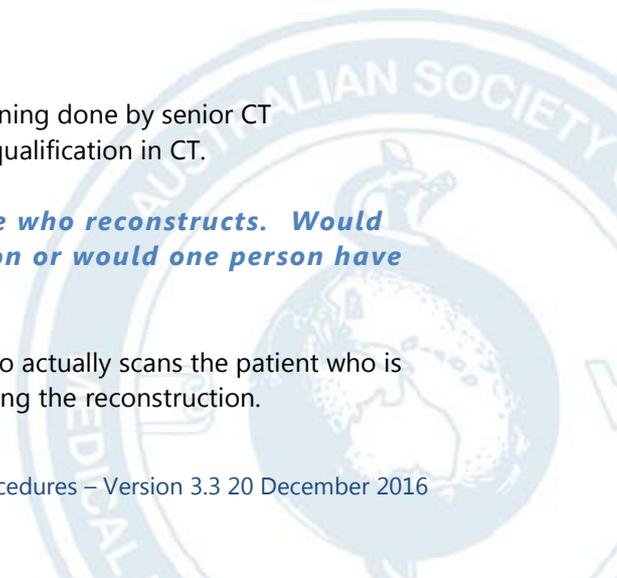
The CT certification program aims to acknowledge the additional skills of more experienced CT staff. MIAP 1 is aware that not all Radiographers will be able to achieve these numbers. In smaller departments, it is likely that only one of two regular CT staff will be able to achieve certification. The numbers are set at this stage, although the program will undergo continual review. The CT certification program is voluntary and not a requirement of either ASMIRT or MRPBA to perform CT.

What exactly does Certification mean?

Certification has been developed to acknowledge the additional learning done by senior CT Radiographers as part of their clinical role. It is not a post graduate qualification in CT.

We have 2 people rostered to CT, one who scans and one who reconstructs. Would they both be able to claim one patient as an examination or would one person have to carry out the whole examination to claim it?

If one person is scanning and one reconstructing, it is the person who actually scans the patient who is considered responsible for the examination, not the person performing the reconstruction.



Will this lead to higher wages and will it be necessary to have certification in order to operate CT machines etc...?

The CT certification process is not intended to lead to higher wages. If state based awards acknowledge this type of certification as being eligible for a higher qualification then it is up to the individual to negotiate this with their employer.

CT certification is not required to perform CT. It is still considered part of the scope of practice of a Radiographer.

I am a newly qualified radiographer. Am I permitted to sit this exam?

There are no restrictions with regards to minimum level of CT experience required before undertaking the CT examination. There are however requirements for the clinical component, so if you are not working in the CT area, this may be a little difficult to achieve the required numbers of clinical examination. The CT certification program has been designed for more experienced CT practitioners.

I have a Master of Science in CT awarded by an overseas University. Does ASMIRT offer any certification for this qualification or would I have to undertake both parts of the CT Certification process?

There is a difference between an academic qualification and a professional certification. In order to gain the ASMIRT Certificate, you will need to undertake Part A and B.

I am the Chief CT Radiographer running a MRI practice and would like to undertake the CT certification. As I am the "Supervisor", whom I can get to sign part C as 'supervisor' for the clinical component? My CEO is a Radiographer but has no CT experience and there is only one other CT Radiographer, whom I supervise. Can I have our Radiologist sign part C?

It can be signed off by a supervising Radiologist, Chief Radiographer or an appropriate Manager. Evidence, such as RIS data should be available to substantiate the claim. This will also be the same for sole practice radiographers.

What do I do if I think that the examination result was wrong?

All examinations and subsequent results are reviewed and checked thoroughly prior to release on the website. If you have queries regarding your examination, please contact the ASMIRT secretariat office.

Can I sit the Examination abroad?

Yes examinations can be undertaken overseas. - In order to sit this examination, you must organise your own examination venue and supervisor, and pay for any additional costs for mailing materials to the examination supervisor and return mail to Australia.

