

2021



ASMIRT

Policies and Procedures

Angio Cardiac Certification

Your profession. Your future.



There are a number of protected titles for medical radiation practice. They include:

Medical Radiation Practitioner (MRP)

Diagnostic Radiographer (DR)

Medical Imaging Technologist (MIT)

Radiographer

Nuclear Medicine Scientist (NMS)

Nuclear Medicine Technologist (NMT)

Radiation Therapist (RT).

For the purposes of our documentation we use the broad descriptor Medical Radiation Practitioner (MRP) recognising that it covers a range of areas of practice.



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Contents

| | |
|---|----|
| Cardiac Interventional Imaging (Angiography) | |
| Introduction | 4 |
| Certification of the Cardiac Imaging Practitioner | 4 |
| Legislation | 4 |
| Certification Policies | 4 |
| Certification Eligibility | 5 |
| Level 1 Application | 5 |
| Level 1 Renewal | 5 |
| Signatory on Part B of Level 1 Certification Applications | 6 |
| Certification Length | 7 |
| Certification Renewals | 7 |
| Lapsed Certificates | 7 |
| Extensions | 9 |
| Angiography Level 1 Certification Part A: Theoretical Component – Written Examination | 9 |
| Angiography Level 1 Certification Examination | 10 |
| Certification Exam Process | 10 |
| Examination Venue | 11 |
| Examination Supervisor | 11 |
| Examination Procedures | 12 |
| Special Consideration | 13 |
| Certification Procedures | 14 |
| Assessments | 15 |
| Incorrect Applications | 15 |
| Extension Application | 15 |
| Current Application Forms | 15 |
| Suggested Reading | 15 |
| Sample Questions | 16 |
| FAQ's | 18 |



Cardiac Interventional Imaging (Angiography)

Introduction

Diagnostic and Interventional cardiac angiography has undergone significant technique and procedural change in the last 20 years. The advancing role of radiographers in this speciality has led to the implementation of a certification program. This Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) program aims to recognise the additional skills, training and experience radiographers possess to perform high quality angiographic examinations.

The program, consisting of a certification exam, is aimed at a beginner angiography practitioner level and working in a cardiac angiography room. Radiographers at this level should have completed training through an official in-house training program and are regularly rostered through Cardiac catheterisation labs.

Certification of the Cardiac Imaging Practitioner

The certification process consists of 2 components. A multiple-choice question exam and practical experience component.

Legislation

There is currently no legislative requirement to be registered as an angiographic practitioner in Australia, however it is recommended that angiographic practitioners possess a specific level of training or experience prior to operating angiographic equipment. It is recommended that any radiographer undertaking angiography procedures holds certification.





Certification Policies

Certification Eligibility

Level 1 Application

Certification comprises a theoretical (part A) and a clinical component (part B). Certification is valid for a 3-year period. Angiographic 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, which involves a paper not exceeding 180 multiple-choice questions covering topics such as: Angiographic equipment, Angiographic anatomy, pathophysiology & pharmacology, Angiographic physics, Fundamental cardiac angiographic principles and procedures.

Part B - Practical experience component. Requires the candidate's supervisor to acknowledge experience with 150 cardiac examinations. These 150 examinations must have taken place within a 12-month period. This period must have occurred within the 3 years prior to application submission.

Experience may include all or part involvement in the following:

- Patient and/or room setup
- Opening of sterile equipment and/or consumables
- Angiographic projection positioning
- Setting/manipulating acquisition and/or injection parameters
- Peri/post procedure image processing

Procedure eligibility

Candidates of the certification process are required to document their practical experience by verifying their assistance in 150 diagnostic or interventional cardiac procedures during a 1-year period.

The following procedures are not permitted as part of the 150 examinations required for the Part B component:

- Diagnostic and interventional fluoroscopic procedures
- EP studies
- Ablation
- Cardiac biopsy



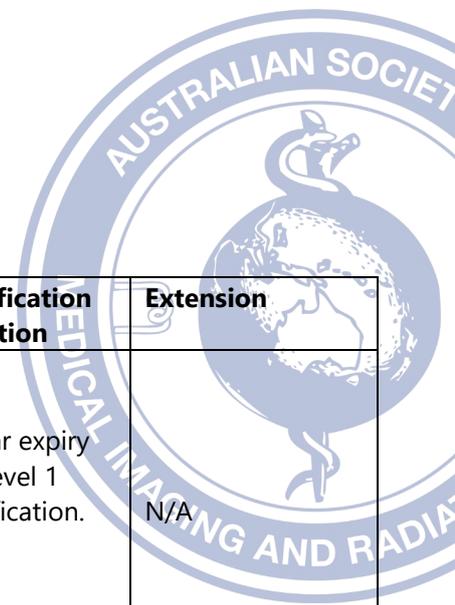


Table 1.

Cardiac Imaging (Angiography) Level 1 Certification Requirements.

| | Eligibility Requirements | Time to Acquire | Certification Duration | Extension |
|-----------------------------------|---|---|--|------------------|
| Level 1 Application | <p>Part A - Undertake Level 1 Certification Examination.</p> <p>Part B - Complete 150 clinical Cardiac angiographic examinations.</p> | <p>Part A and Part B must be completed within a 3-year period.</p> <p>Application submission must occur within 3-years of sitting Part A examination.</p> | 3-year expiry for Level 1 Certification. | N/A |
| Level 1 Application Lapsed | If Certification application submission does not occur within 3 years of successfully undertaking the Part A examination, then applicants must re-sit this examination. | | | |

Level 1 Renewal

Renewal of Certification requires completion of the clinical component only. The clinical component requires the candidate's supervisor to acknowledge completion of 450 cardiac angiographic examinations. These 450 examinations must have taken place within the 3-year period. This 3-year 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 angiographic 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.

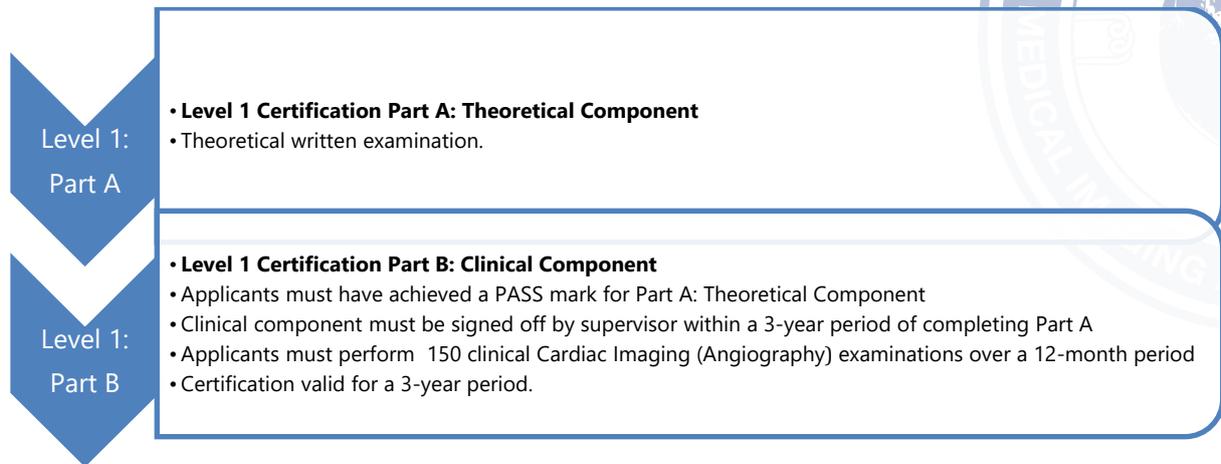
Cardiac Angiography Level 1 Certification Renewal Requirements.

| | Eligibility requirements | Time to acquire | Certification duration | Extension |
|----------------------------------|---|--|---------------------------------|------------------|
| Certification application | Complete 450 <u>cardiac angiographic</u> examinations | <p>450 examinations must be completed within a 3-year period. A Minimum of 150 clinical cardiac angiographic examinations must be completed every 12 months within this 3-year period.</p> <p>This 3-year period must have occurred immediately prior to application submission.</p> | 3-year expiry for certification | n/a |
| Certification lapsed | If Certification application submission does not occur within 3 years of successfully undertaking the Part A examination, then applicants must re-sit this examination. | | | |



Figure 1.

Process of Application for Cardiac Angiography Level 1 Certification.



Signatory on Part B of Level 1 Certification Applications

The Supervisor angiographer 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 supervisory angiography experience. These criteria are the minimum requirements for a supervisor angiographer to be a signatory on Certification applications

Certification Length

Certification certificates have a 3-year expiry from date of issue. Renewed certification certificates 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 angiography 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 policies and procedures/renewal guidelines and application form. Renewals will only be sent to practitioners who are current financial members of ASMIRT (this includes Voting Members and CPD subscribers) and is dependent on a current registered email address being maintained by the member.

If the practitioner fails to return the renewal application form for Certification, a final notice will **NOT** be issued. Practitioners must ensure that their details are current and up to date in their member profile. Please note renewal notices are not sent to non-ASMIRT members, nor non-ASMIRT CPD subscribers.

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

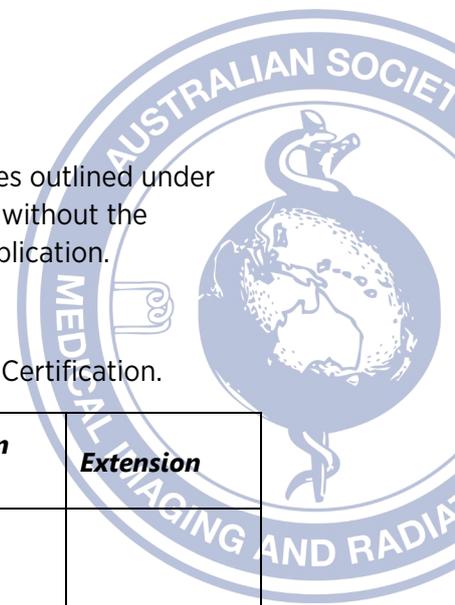


Practitioners with lapsed Certification are expected to follow the procedures outlined under Certification Eligibility (Page 5). Lapsed certification cannot be re-instated without the candidate correctly following all of the outlined criteria for Certification application.

Figure 2.

Outline of the Renewal Process for Cardiac Imaging (Angiography) Level 1 Certification.

| | Eligibility requirements | Time to acquire | Certification duration | Extension |
|------------------------------|--|---|--|------------------------------------|
| Certification renewal | Complete 450 cardiac angiographic procedures | 450 examinations must be completed within a 3-year period. A minimum of 150 clinical cardiac angiographic examinations must be completed every 12-months within this 3-year period. This 3-year period must have occurred immediately prior to application submission. | 6-month grace period for lapsed Certification. | Apply before Certification expiry. |
| Renewal lapse | Re-sit certification Examination. Complete 150 cardiac angiographic procedures | Must be completed within a 3-year period. | As for Certification Application. | N/A |



4 Months Before Renewal Due

• A reminder of the upcoming renewal will be issued 4 months prior to renewal date and will include a link to the relevant renewal form. This email will also outline the consequences of failing to renew.

Renewal Due Date/Certificate Expiry

• Renewal form will be forwarded for review once received, and once approved a certificate will be renewed and available online to members or sent via post to the applicant if requested, for a fee.

After Renewal Due

• If a renewal or extension application has not been submitted, a final notice to renew will **NOT** be issued.

6 Months After Renewal Due

• 6 months after the renewal date, if no renewal or extension is received, the certification status will be deemed as expired. ASMIRT will not contact those with lapsed Cardiac Interventional Imaging (Angiography) certification.

Lapsed Certificates

Practitioners who allow their certificate to lapse may request an extension. These are granted on a case-by-case basis. It is up to the certificate holder to check their renewal dates. If a lapsed renewal is permitted, then the expiry date will be 3 years from the expiration date.

Extensions

Practitioners who are unable to fulfil the requirements of renewing their certification before the renewal due date are eligible to apply for an Angiographic certification extension. Supporting documentation must be attached to the application for review (Doctor's certificates, letter from employer, Statutory Declaration etc). Extension applications will be assessed on a case-by-case basis. The extension period granted is at the discretion of ASMIRT.





Cardiac interventional Imaging (Angiography) Level 1 Certification

Part A: Theoretical Component - Written Examination

Cardiac Imaging (Angiography) Level 1 Certification Examination

Candidates will sit a multi-choice question (MCQ) exam containing no less than 160 questions over a maximum duration of 3 hours.

Examination Breakdown

| | | |
|--------------------|---|-----|
| Section A | Angiographic equipment | 13% |
| Section B | Angiographic anatomy, pathophysiology & pharmacology | 18% |
| Section C | Angiographic physics | 12% |
| Section D | Fundamental cardiac angiographic principles | 15% |
| Section E (Part 1) | Fundamental cardiac angiographic procedures – Coronary/Arterial procedures | 20% |
| Section E (Part 2) | Fundamental cardiac angiography procedures – Electrical and structural procedures | 15% |
| Section F | Cardiac angiographic image labelling | 7% |

Candidates will need to achieve an overall pass mark for 75% with no less than 65% in any one section. After the conclusion of the examination, the results are tabled and reviewed and undergo rigorous scrutiny.

Cardiac Angiography Level 1 Certification Examination results are posted online 6 weeks post examination at <https://www.asmirt.org/certification/>, listing candidates who have passed. Results are listed using the unique Candidate ID number, which is issued to all registered candidates.

Email 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 1.

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

| Part A | Part B | Part C | Part D |
|-----------|--------|--------|---------------------|
| High Pass | Credit | Credit | Fail Score 50 -<60% |

Pass score > 85% - High pass

Pass score 76-85%- Credit

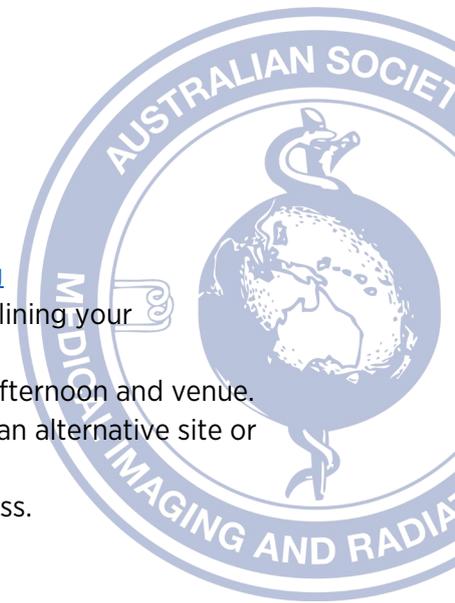
Pass score 65-75%- Section Pass

Fail Score 60-64% - Close but needs more study

Fail Score 50 -<60% need a lot more study

Fail Score < 49% need a lot more study





Certification Examination Process

- The certification exams are held several times a year.
- The dates for the examination will be advertised at www.asmirt.org
- After completing the application form you will receive an email outlining your individual process.
- You can select your preferred date and in some cases morning or afternoon and venue.
- If your nearest city/town is not available, then you may be offered an alternative site or alternative process.
- Your venue should be less than 150kms from your workplace address.

Exam Venues

These sites are managed by external providers and as such there are some rules specific to some venues, and some things you need to understand.

1. The room may contain candidates sitting other examinations. They may be coming or leaving at different times.
2. The certification exams are allocated 3 hours in length. The staff at the centre will commence the exam on your computer screen. After this time your screen may be locked out. You may leave early but please be respectful of other candidates.
3. You must arrive at the time designated- you will not be admitted if you are late.
4. Ensure that you read all the documentation provided by Pearson Vue including the location of the venue. We recommend that if you are not familiar with the location of the examination venue, that you plan ahead and drive past the venue as a familiarisation exercise.
5. You must bring 2 forms of photo identification (passport, drivers' licence) as well as your examination registration details. You will not be allowed in to sit without this documentation.
6. You may be asked to place all personal items into a locker or in an area outside the room.
7. You may be requested to remove all jewellery. This is for security reasons.
8. You may not bring into the exam room any other items such as a calculator (there are no questions in the exam that require complicated mathematics).
9. Some sites may restrict the bringing in of water bottles.
10. You will need to bring in a mask. Wearing the mask during the exam will be at the discretion of the exam venue.
11. You will be told how to excuse yourself during the exam.
12. You will be given a note pad to write on. This must be left behind. It may consist of a laminated blank page. Any note pages must be left behind at the end of the examination.
13. The supervisor will explain how to forward and back questions and how to complete checking.
14. The randomisation process of the examination means that no one candidate will receive the same questions and answer selection. Each question is selected from the question bank, but each answer selection is further randomised, so your selection of a or b or c or d may be different to your colleagues, even if the question is the same.
15. You will be able to ask for help during the examination
16. The results will not be available immediately at the end of the examination. They will be released via an examination list on the ASMIRT website and via individual email.





Written exam process

(For candidates who are eligible for a paper version of the exam)

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 in a relationship, nor 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 may request to sit the examination at their own location if a Pearson Vue location is unavailable. 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. If you arrive 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 | ■ | E | F |
|---|---|---|---|---|---|

i. 2.

| | | | | | |
|---|---|---|---|---|---|
| A | ■ | C | D | E | F |
|---|---|---|---|---|---|

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

Examples from exams:

Difficult to read through the scanner

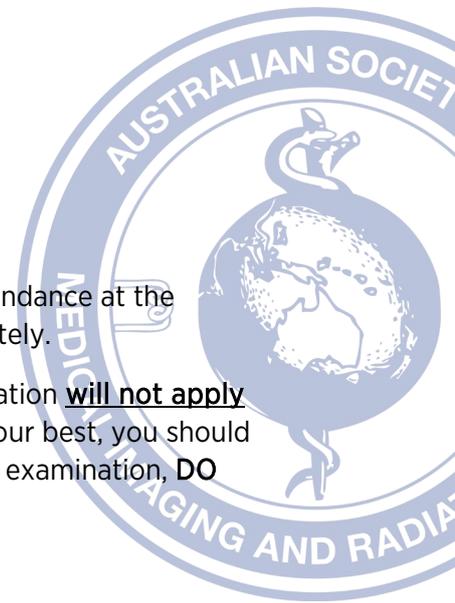


Colour boxes like this clearly



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 the 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 immediately.

If you commence the examination, you are ruled to be fit. Special consideration **will not apply** and your result will be upheld. If you are unwell or unlikely to perform at your best, you should contact ASMIRT prior to the exam date. If you are unwell on the day of the examination, **DO NOT SIT THE EXAM.**

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

Assessment of Certification applications and renewals may take up to 8 weeks from the date that the Secretariat receives a practitioner's application. A Level 1 application will be dated from the original date that the application was approved.

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.

Current Application Forms

Practitioners must ensure that current application forms (as available on the website) are submitted to the ASMIRT, or applications will not be accepted.





Suggested Reading

Basics of Angiography

- Interventional Radiology: A survival Guide, 3rd Edition, Kessel and Robertson, 2012
- Handbook of radiologic procedures, 4th edition, Kandarpa and Machan, 2012

Anatomy

- Atlas of Vascular anatomy: an angiographic approach, 2nd edition, Uflacker, 2007

Cardiac angiography

- Grossman's Cardiac catheterization, angiography and intervention, Donald S. Baim, 7th Edition, 2006 through the following link:
- https://books.google.com.au/books?id=r0cE-S10SKMC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false

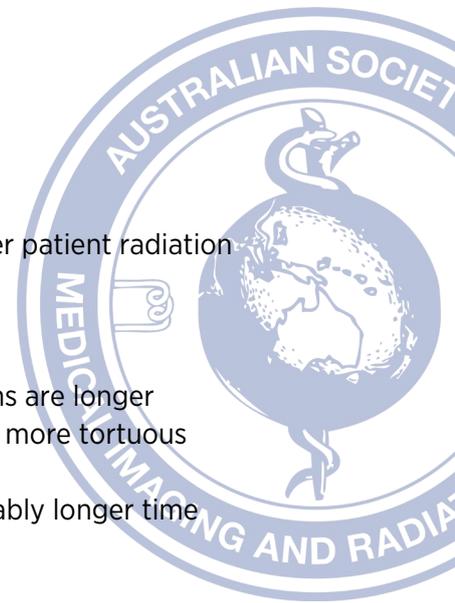
Cardiac angiography projections

- Coronary angiography in the angioplasty era: projections with a meaning. Carlo Di Mario, Nilesh Sutaria Heart 2005;91:968–976. doi: 10.1136/hrt.2005.063107

Other Materials

Any other source material can suffice however the information must be general in its applications to angiography. Doctor, practice and site-specific methods may be too narrow in their applications and should be avoided. Site specific practices are not being examined, only the fundamental angiography methodologies (which apply across all sites).





Sample Questions

1. Using radial arterial access for a coronary angiogram leads to higher patient radiation doses. Why:
 - a.) More acquisitions of the contrary arteries are required
 - b.) Radial artery catheters are smaller, therefore acquisitions are longer
 - c.) The anatomy from the radial artery to the aorta is often more tortuous requiring more fluoroscopy to visualise
 - d.) Initial cannulation of the radial artery can take considerably longer time than femoral access

The correct answer is c.

2. The pressure limit on a power injector exists:
 - a.) To increase the duration of a procedure
 - b.) To protect the patient, catheter and injector from extreme pressure increases
 - c.) To prevent the use of extremely low pressures
 - d.) To stabilize the injection pressure

The correct answer is b.

3. A positive D-Dimer test indicates:
 - a.) Probable myocardial infarction
 - b.) No myocardial infarction
 - c.) No PE or DVT
 - d.) Probable PE or DVT

The correct answer is d.

4. List the ideal projection for demonstrating the left common femoral bifurcation.
 - a.) LAO 10
 - b.) LAO 30
 - c.) RAO 30
 - d.) RAO 10

The correct answer is b





5. The severity of an atrial septal defect can be determined by:
- a.) Taking a series of oxygen saturations from different areas of the right heart
 - b.) Taking a series of oxygen saturation from different areas of the left heart
 - c.) Performing a right ventriculogram
 - d.) Performing a left ventriculogram

The correct answer is a.

6. Which projection is normally used to traverse a catheter through the chambers of the right heart to the pulmonary arteries:
- a.) Left anterior Oblique
 - b.) Right anterior oblique
 - c.) Posterior anterior projection
 - d.) Lateral projection

The correct answer is c.

7. How would a catheter be able to travel directly from the right atrium to the left atrium:
- a.) Through a patent Foramen ovale
 - b.) Through a trans septal puncture
 - c.) Through an Atrial Septal Defect
 - d.) All of the above

The correct answer is d.





FAQ's

Do I have to sit the Angiography Certification Examination to work as an angiography radiographer in Australia?

No, however passing the examination and being part of the ASMIRT Level 1 Angiography Certification Program is an indication of your knowledge and commitment to your speciality within the Medical Imaging profession. There are some departments and practices which require Level 1 Certification prior to employment. 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?

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.

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 not to join the Certification Program within the 3-year time period and change your mind down the track, you may be required to re-sit the Level 1 examination again.

What are examples of cardiac procedures that would count towards the 150 clinical examinations required for Part B practical experience component?

- Pacemaker insertion involving the injection of contrast and the acquisition of a run (whether that be DSA or un-subtracted angiography)
- Diagnostic coronary angiography
- Interventional coronary angiography (angioplasty, stenting, rotorblator, chronic total occlusion, thrombectomy)
- Tavi workup
- Tavi insertion
- Balloon Valvuloplasty
- Atrial appendage occlusion
- Ductus arteriosus closure
- Patent foramen ovale closure
- Closure of a coronary artery fistula





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 may be undertaken overseas providing that there is a Pearson Vue centre in your location. If there are no Pearson Vue venues in your location, there may be the opportunity to sit a paper version of this examination. Please contact the secretariat to discuss. If the opportunity becomes available, you will be responsible for organising your own examination venue and supervisor and paying for any additional costs for mailing materials to the examination supervisor and return mail to Australia.

How do I improve my chances of passing the exam?

History has shown us that forming a study group, finding a mentor and practising as many questions as you can, will improve your outcome.

How many times can I sit the examination?

The maximum number of times you can sit this examination consecutively is 3. We recommend that you wait 12 months and seek assistance with your study prior to attempting your next examination.

