ASMIRT Study Guide for Preliminary Image Evaluation (PIE) On-Line Imaging Examination

PIE Certification Examination

The examination is designed to test the candidate's ability to evaluate case study images in both the acute Emergency Department setting and the acute High Dependency / Intensive Care Unit environment.

The examination involves a series of imaging case studies which will be displayed on a venue computer screen not exceeding 80 case studies, over a duration of 3 hours (180 minutes).

The Preliminary Image Evaluation topics are as follows:

- Upper Limb (Making up approximately 30% of the examination)
- Lower Limb (Making up approximately 35% of the examination)
- Spine (Making up approximately 15% of the examination)
- Chest and Chest Line Insertion (Making up approximately 20% of the examination)

The questions are based on the diagnostic findings in the following subjects as stated by the Medical Radiation Practice Board of Australia (2019), Professional Capabilities document:

- fractures of the long bones
- fractures of the carpal and tarsal bones
- common pathologies of the bony skeleton
- acute dislocations of joints
- soft tissue signs of occult fractures
- fractures of the hip and pelvis
- disruption to the lines of alignment of cervical spine lateral projection and soft tissue signs of underlying injury
- non-alignment of the lateral masses of C1 and a break in the odontoid peg - fracture/dislocation of C1/C2
- fractures involving the thoracic, lumbar and sacro-coccygeal spine
- foreign bodies in head, neck chest & abdomen, particularly in the paediatric patient
- pneumothorax (spontaneous and tension), pneumomediastinum
- incorrect positioning of important chest tubes and lines e.g. NGT, PICC

The successful candidate will need to be able to differentiate the difference between a normal and abnormal case study, and where the case study is abnormal, the region of the body and identify the pathology.
# Preliminary Imaging Evaluation (PIE)

## Outcomes
- Evaluate normal anatomy, and unexpected or urgent medical findings
- Operate proficiently in the clinical environment and during complex procedures

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<td><strong>Upper Limb</strong></td>
<td>Identify and describe radiographic features and radiological findings</td>
</tr>
<tr>
<td>• Shoulder, humerus, elbow, forearm, wrist and hand.</td>
<td>• Upper Limb</td>
</tr>
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<td><strong>Lower Limb</strong></td>
<td>• Lower Limb</td>
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<td>• Pelvis, hip, femur, knee, tibia, fibula, ankle and foot.</td>
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<td><strong>Spine</strong></td>
<td>• Chest (within an ICU / HDU environment)</td>
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<td>• Chest line positioning, pneumothorax and pneumoperitoneum.</td>
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The PIE Certification Examination Structure

This certification examination varies in its structure from the certification examinations for MRI, CT, Vascular Angiography, and Cardiac Angiography.

The examination involves a series of imaging case studies which will be displayed on a venue computer screen not exceeding 80 case studies, over a duration of 3 hours (180 minutes). This computer will not have a diagnostic imaging acquisition screen system.

It is designed to test the candidate's ability of image evaluation in the acute emergency setting, and the acute medical setting within the HDU / ICU.

1. The examination will be performed on a venue specific computer screen system.

2. Each case study in each section will follow the same consistent approach for evaluating the correct answer / image evaluation.

3. The on-line examination will commence with the candidate and the venue uploading their registration details. Once completed, the candidate will be presented a candidate instruction tutorial to ensure they understand how each case study will be presented in the examination. This tutorial will be available for a 10-minute duration.
   At any stage before the duration of 10 minutes has elapsed and the candidate has satisfied themselves that they are ready to start the examination, they are permitted to do so.
   Once the full examination has commenced, candidates have three (3) hours to complete it. After three (3) hours has elapsed, the candidate will no longer have access to the examination.
The layout of each case study on the computer screen is as follows:

- The images of each case study will be on the left-hand side of the screen.
- The choice of “Normal” and “Abnormal”, along with the “Drop-Down” Menus, which will need to be populated to describe the potential abnormality will be on the right-hand side of the screen. The clinical history will also be shown on the right-hand side of the screen.

- There will be a vertical bar dividing the images from the clinical history of the case and where the candidate will assess whether the case study is “Normal” or “Abnormal”. This bar can be dragged over to the right-hand side of the screen to allow for all of the images to be clearly seen, and vice-versa.
- There is the ability to “zoom up” the images for greater clarity.
- On the right-hand side of the screen, the candidate will see the clinical history pertaining to the case study.
- The candidate will then have a choice between “Normal” and “Abnormal”. An icon will need to be clicked on to indicate whether the study is “Normal or “Abnormal”.

4. With each case study question, the candidate will be given three options to choose from.
   - The case study is normal or has normal variants such as anatomical variants, non-traumatic pathology, old fractures, evidence of previous surgery, as well as devices such as (for example) a permanent pacemaker and sternotomy wires.
   - The case study has one abnormality ONLY.
   - The case study has two abnormalities.

5. A clinical history will be given for each case study. It will be generic in nature, to avoid privacy issues.

6. The initial question for the candidate to ascertain with each case study is a determination as to whether it is either “Normal” or “Abnormal”.

   Please note, due to the technical structure of the on-line examination, it may be possible to indicate that the case study is “normal”, but also to fill in some (or all) of the abnormality “drop-down” menu.
If this scenario happens, the examiner will mark the case study as being “normal”, as that is the initial determination made by the candidate.

7. If the candidate examines a case study, and believes it to be normal, then they shall indicate that it is normal and proceed to the next question / case study.

8. If the candidate examines a case study, and believes it to be abnormal, then they shall indicate this. Once the candidate has determined that the case study is “abnormal”, there are two “drop-down” menus to potentially populate.

9. If the candidate decides that there is only one abnormality on the case study, please be aware that the examination is technically designed to always provide for the potential of two abnormalities.

10. If the candidate believes that there is only one abnormality, they should complete the first abnormality section (region of the body and the type of abnormality, etc.), and then proceed to the next case study.

11. As stated, the examination is designed to test the candidate’s ability to evaluate case study images in both the acute Emergency Department setting and the acute High Dependency / Intensive Care Unit environment.

Due to this requirement, and the way this examination is technically designed, each section will have four distinct “Drop-Down menus (Side / Location / Medical Devices / Findings).

There will be separate abnormal “Drop-Down” menus in each section of the examination for “Location” menus.

There will be a specific “Drop-Down” menu for the Upper Limb Section (Shoulder to Elbow).
There will be a specific “Drop-Down” menu for the Upper Limb Section (Forearm to Fingers).
There will be a specific “Drop-Down” menu for the Lower Limb Section (Pelvis to Tibia / Fibula).
There will be a specific “Drop-Down” menu for the Tarsal Bones / Foot.
There will be a specific “Drop-Down” menu for the Cervical Spine Section, the Thoracic Spine Section and the Lumbar Spine Section.
There will be a specific “Drop-Down” menu for the Chest Section.

Each part of the “drop-down” menu must be completed.

There is no ability to “free text” in this examination.

- If you believe that there is / are an abnormality(ies) within the Upper Limb Section, you will be required to place an answer in each of the four (4) drop-down menus.

The first drop-down menu is “Side”. There will be three alternatives to choose from: “Non-Side Specific” / “Left” / “Right”.
In this section, the primary answer will be either “Left” or “Right”.
By answering correctly (in isolation), you will not receive one (1) mark. However, if answered incorrectly, there will be no mark given for the overall anatomical region.

The second drop-down menu is “Location”.
Scroll down that particular drop-down menu, until you find what you believe is the correct anatomical region.

The third drop-down menu is “Medical Devices”.
As this menu is only to be used in the “Chest Section”, please select “Not Applicable / Chest Section”.
The fourth and final drop-down menu is “Findings”. Scroll down that particular drop-down menu, until you find what you believe is the correct pathology / medical condition.

- If you believe that there is / are an abnormality(ies) within the Lower Limb Section, or the Tarsal Bone / Foot Section, you will be required to place an answer in each of the four (4) drop-down menus.

The first drop-down menu is “Side”. There will be three alternatives to choose from: “Non-Side Specific” / “Left” / “Right”.
In this section, the primary answer will be either "Left" or "Right".
By answering correctly, you will not receive one (1) mark, However, if answered incorrectly, there will be no mark given for the anatomical region.

The second drop-down menu is “Location”.
Scroll down that particular drop-down menu, until you find what you believe is the correct anatomical region.

The third drop-down menu is “Medical Devices”.
As this menu is only to be used in the “Chest Section”, please select “Not Applicable / Chest Section”.

The fourth and final drop-down menu is “Findings”.
Scroll down that particular drop-down menu, until you find what you believe is the correct pathology / medical condition.

- If you believe that there is / are an abnormality(ies) within the Cervical Spine / Thoracic Spine / Lumbar Spine Section, you will be required to place an answer in each of the four (4) drop-down menus.

The first drop-down menu is “Side”. There is one alternative within this menu in the “Spine Section”, please select “Non Side Specific”.

The second drop-down menu is “Location”.
Scroll down that particular drop-down menu, until you find what you believe is the correct anatomical region.

The third drop-down menu is “Medical Devices”.
As this menu is only to be used in the “Chest Section”, please select “Not Applicable / Chest Section”.

The fourth and final drop-down menu is “Findings”.
Scroll down that particular drop-down menu, until you find what you believe is the correct pathology / medical condition.

- If you believe that there is / are an abnormality(ies) within the Chest Section, you will be required to place an answer in each of the four (4) drop-down menus.

The first drop-down menu is “Side”. There will be three alternatives to choose from: “Non-Side Specific” / “Left” / “Right”.
By answering correctly, you will not receive one (1) mark, However, if answered incorrectly, there will be no mark given for the anatomical region.

The second drop-down menu is “Location”.
As this menu is redundant in the “Chest Section”, please select “Chest”.

The third drop-down menu is “Medical Devices”.
As this menu is only to be used in the “Chest Section”, there are two alternatives.
If the question does not pertain to medical devices, then select “No Medical Devices”, which will appear first on this drop-down menu.
If the question does pertain to medical devices, then select from the other alternatives in this drop-down menu.

The fourth and final drop-down menu is “Findings”. Scroll down that particular drop-down menu, until you find what you believe is the correct pathology / medical condition.

12. During the tutorial, the candidate will also be instructed on the following areas of the examination. They include:
   - “How to Use the Mouse”
   - “Time and Progress of the Examination”
   - “Navigation of Screen”
   - “Using the Scrollbar”
   - “Flag for later Question Review”
   - “Using the Review Screen”
   - “Ending Review”

**Online Educational / Reading Material**

This material is considered suitable to provide the applicant with a sound understanding necessary for study.


6. European Society of Radiology online education services at [www.myesr.org/education/online-services](http://www.myesr.org/education/online-services)
7. Lightbox Radiology Education provides face-to-face radiology courses and online e-learning solutions at [https://lightboxradiology.com/](https://lightboxradiology.com/)
9. Online e-learning can be found at [https://www.imageinterpretation.co.uk/](https://www.imageinterpretation.co.uk/)
10. Radiopaedia e-learning resources can be found at [https://radiopaedia.org/courses?lanq=gb](https://radiopaedia.org/courses?lanq=gb)
11. Accident and Emergency Radiology - Raby, Berman and deLacy
Examination Venue and Procedures

These sites are managed by external providers, Pearson Vue, and as such there are some rules specific to some venues, and some things you will need to have an understanding of are:

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.
5. You must bring 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. Candidates are not to screen capture, take photos or write case questions down during the examination.
9. 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)
10. Some sites may restrict the bringing in of water bottles.
11. You will be told how to excuse yourself during the exam.
12. The supervisor will explain how to forward and back questions and how to complete checking.
13. You will be able to ask for help during the examination
14. The results will not be available immediately at the end of the examination. Candidates will be informed of their results by ASMIRT.