

Medical Physicist interview questions

careertips.com.au: common questions and what they're really testing

What to expect

Interviews for medical physicist roles in Australia typically assess your technical knowledge, clinical judgement, safety mindset and ability to work within a multidisciplinary team. Expect a mix of questions that probe your understanding of radiation physics, your experience with quality assurance and your approach to regulatory compliance.

- **Technical knowledge:** Questions on radiation physics, dosimetry, treatment planning and equipment calibration.
- **Scenario and judgement:** How you would respond to equipment faults, dose discrepancies or safety incidents.
- **Behavioural and teamwork:** Working with radiation oncologists, therapists and engineers.
- **Regulatory and safety:** Understanding of ARPANSA, state radiation safety acts and ACPSEM standards.
- **Process and problem solving:** Walk-throughs of how you approach calibration, commissioning or QA tasks.

The interview may start with an informal conversation with a chief physicist, followed by a panel that includes a radiation oncologist and a senior physicist. You might be asked to present a case or explain a complex concept to a non-specialist. Some employers include a tour of the department and a chance to meet the team.

1. Can you walk us through how you would commission a new linear accelerator?

Why they ask

This tests your practical understanding of the commissioning process and your ability to work systematically under regulatory standards.

How to structure your answer

Start with an overview of the commissioning stages, then detail the acceptance testing, beam data collection, and validation against a reference system. Finish with how you would document and sign off.

Example answer

"I would begin by reviewing the manufacturer's specifications and the relevant ARPANSA and state requirements. First, I would perform acceptance testing to confirm the machine meets its technical specifications. Then I would collect beam data, including percentage depth dose, profiles and output factors, using a water tank and detectors. I would input this data into the treatment planning system and validate it against a reference dataset. After that, I would run a series of end-to-end tests with anthropomorphic phantoms to check dose accuracy. Finally, I would document all results, have them independently verified, and sign off the commissioning report before clinical use."

2. Tell me about a time you identified a discrepancy in a treatment plan. What did you do?

Why they ask

This assesses your attention to detail, problem-solving and communication with clinical teams.

How to structure your answer

Use STAR: describe the situation, the task, the action you took and the result.

Example answer

"In my previous role, a radiation oncologist asked me to review a plan for a head and neck patient. I noticed the dose distribution showed a hot spot near the spinal cord that exceeded our tolerance. My task was to investigate and resolve it before treatment. I checked the plan parameters, the CT dataset and the contouring, and found that the spinal cord contour was slightly incomplete. I discussed this with the oncologist and the radiation therapist, and we revised the contour and re-optimised the plan. The final plan met all constraints, and the patient started treatment on schedule. I also shared the finding in our weekly QA meeting to help others avoid similar contouring errors."

3. A radiation therapist reports that a patient's dose is higher than expected on a treatment machine. How would you handle this?

Why they ask

This tests your judgement under pressure and your commitment to patient safety and regulatory reporting.

How to structure your answer

Show a step-by-step approach: stop and assess, verify measurements, check equipment and plan data, communicate with the team, and escalate if needed. Emphasise patient safety.

Example answer

"First, I would ask the therapist to pause treatment for that patient and any others on the machine. I would then review the treatment record and the plan to confirm the reported dose. Next, I would perform independent measurements on the machine, checking output, energy and any recent calibration history. If I found a fault, I would take the machine out of service and notify the chief physicist and the radiation oncologist. I would also check whether any other patients were affected and follow our incident reporting procedure, including notifying the relevant regulator if required. Throughout, I would keep the team informed and document every step. Patient safety comes first, so I would not resume treatment until the issue was fully resolved and verified."

4. How do you stay current with changes in radiation safety regulations and ACPSEM standards?

Why they ask

This probes your commitment to professional development and regulatory compliance, which is central to the role.

How to structure your answer

Describe your methods: reading ARPANSA updates, attending ACPSEM meetings, internal audits, and applying changes to local protocols.

Example answer

"I regularly check the ARPANSA website for updates to the Radiation Protection Series and any changes to state legislation. I am a member of ACPSEM and attend their branch meetings and webinars, which often cover new standards or best practices. I also participate in our department's internal audits and quality meetings, where we review our protocols against the latest requirements. When a change occurs, I update our local procedures and run a short training session for the team. For example, when the code of practice for radiotherapy was updated, I led a review of our QA schedule and adjusted it to align with the new requirements."

5. Give an example of how you have explained complex physics concepts to a non-physicist colleague.

Why they ask

This assesses your communication skills and ability to work in a multidisciplinary team.

How to structure your answer

Use a specific example, explain the context, how you simplified the concept, and the outcome.

Example answer

"A radiation therapist once asked why we needed to repeat a particular quality assurance test after a minor repair on a linear accelerator. Instead of explaining the physics of electron transport and beam stability, I used an analogy: imagine a car's steering wheel being adjusted, you need to check the alignment again before driving at high speed. I then showed her the specific test results and explained what would happen to the dose if the machine was slightly out. She understood the reasoning and appreciated the context. After that, she felt more confident explaining the process to patients who asked about delays. It helped build trust between our teams."

6. What do you see as the biggest challenge in medical physics today, and how would you address it?

Why they ask

This tests your strategic thinking and awareness of current issues in the field.

How to structure your answer

Show awareness of current issues like new technologies, workforce, or regulatory changes. Offer a balanced view and a practical approach.

Example answer

"One significant challenge is keeping pace with rapidly evolving technology, such as online adaptive radiotherapy and AI-based treatment planning, while maintaining rigorous safety and quality standards. I would address this by investing in structured training and validation. For example, when our department introduced a new planning system, I volunteered to lead the implementation, working through the acceptance testing and developing a training program for all staff. I also set up a regular forum to discuss new techniques and share lessons learned. This approach ensures we can adopt innovations safely without compromising patient care. It also helps retain staff by giving them opportunities to develop new skills."