

## Statement

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### Statement on artificial intelligence in medical radiation practice

#### Introduction

Artificial intelligence (AI) is intended to support human endeavour and involves machines that are designed, built and programmed to perform tasks, often in a faster, more efficient and more effective way than humans can. AI, machine learning and deep learning algorithms offer great opportunities in the analysis of data with associated benefits for patients for the delivery of safe health services.

In recent years AI has emerged as an element of health care and will be a significant part of practice in the medical radiation practice profession. While AI can contribute positively to the provision of healthcare services, registered practitioners must be aware of the limitations of AI; its role as an assistant/adjunctive technology and, be advocates for patient safety and wellbeing.

Medical radiation practitioners have the underlying attributes and capabilities to facilitate the use of emerging technologies such as AI and its evolving states into everyday practice. It is important that medical radiation practitioners develop their skills and knowledge for their role as significant users and facilitators of this technology.

#### What is artificial intelligence (AI)?

'Artificial intelligence (AI) is a collection of interrelated technologies that can be used to solve problems autonomously and perform tasks to achieve defined objectives. In some cases, it can do this without explicit guidance from a human being.' (Hajkovicz et al. 2019:15) (*aligns with Commonwealth government definition*)

#### Professional capabilities

During the drafting stage of the current [Professional capabilities for medical radiation practice](#) (2020) (the *Professional capabilities*) the Board made provision and allowance for future technologies in the capability statements.

The *Professional capabilities* are broad enough to encompass the current and medium-term effects of AI and machine learning on medical radiation practice.

When encountering new technologies, registered practitioners should consider how the *Professional capabilities* might reasonably apply to these circumstances and ensure their actions are consistent with minimum requirements for safe professional practice.

#### Education

Accreditation standards and the *Professional capabilities* ensure that education providers and their programs equip graduates with:

- information-gathering and analysis skills
- applying data science and understanding the role of health informatics in patient centred care
- the ability to manage and protect patient information and health data
- the understanding of the importance of interprofessional learning, collaboration and practice
- using evidence to inform practice

- integrating evolving technology into learning and practice
- flexibility and adaptability, and
- project management skills.

In meeting the future needs of the workforce, education providers must ensure their curriculums evolve to provide an understanding of, and exposure to, clinical applications of AI, and produce graduates that are capable of safely incorporating AI into contemporary practice.

### Practice

Medical radiation practitioners work with AI across a broad range of clinical and non-clinical roles. They have the skills, knowledge and attributes to lead the development, implementation and deployment of AI systems both in medical radiation practice and broader healthcare fields.

Practitioners must recognise that AI systems rely on program code and adaptive learning protocols that can produce inherent biases and inconsistency. Medical radiation practitioners should also be aware of the information used and generated by AI systems and the implications this has on privacy and security requirements of patient data.

While AI systems can operate autonomously, medical radiation practitioners should use and deploy these systems while maintaining a careful overview and where necessary directing the application of AI in their practice and policies.

Patient safety is paramount; registered practitioners must assert effective control of AI supported systems to ensure that patient safety is not compromised.

### Developing important skills and knowledge for using artificial intelligence effectively

The [Professional capabilities for medical radiation practice](#) establish the minimum or threshold capabilities necessary for safe practice in the profession. The *Professional capabilities* touch on areas related to AI including:

- diagnostic and therapeutic machines used in practice
- data privacy and effective data management
- using and managing patient information and information systems
- identifying and correcting data errors

Medical radiation practitioners need to be aware of and engaged with the changing capabilities of technology, its effect on practice and the implications for the provision of safe, accessible, effective and timely healthcare services.

For medical radiation practitioners this includes, but is not limited to:

- understanding the language of AI
- understanding the principles of AI, the development of data algorithms and the evaluation and validation of AI supported healthcare
- awareness of the benefits and risks, including supervised and unsupervised machine learning,
- informing and explaining to patients about the role of AI in their healthcare
- providing patient centred care that is respectful of, and responsive to, individual patient preferences, needs, and values
- understanding and applying health informatics to ensure safe AI-supported healthcare
- data curation, governance and stewardship that assures patient safety, privacy and data protection
- integrating research driven, evidence-informed approaches to safe AI-supported healthcare, and
- partnering and leading AI-supported point-of-care image analysis and diagnosis, treatment planning and adaptive technologies.

## References

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## Resources

Commonwealth government – [Australia's Artificial Intelligence Ethics Framework](#) (2020)

Artificial intelligence: Guidance for clinical imaging and therapeutic radiography workforce professionals

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