



26 April 2019

## RANZCR Ethical Principles for AI in Medicine

The Australian Society of Medical Imaging and Radiation Therapy (ASMIRT) is the peak body representing medical radiation practitioners in Australia. Our aims are to promote, encourage, cultivate and maintain the highest principles of practice and proficiency of medical radiation science, always mindful that the welfare of the patient should be at the centre of everything we do. ASMIRT would like to extend its support to The Royal Australian and New Zealand College of Radiologists (RANZCR) regarding its document Ethical Principles for AI in Medicine.

ASMIRT understands that Artificial Intelligence (AI) will have a discernible impact on the medical imaging and radiation oncology professions in the next decade. Clearly outlined principles such as the RANZCR Ethical Principles for AI in Medicine ensure appropriate consideration when designing, implementing and reviewing Machine Learning (ML) algorithms and AI tools. This document articulates a proactive response to this emerging speciality by addressing key principles for consideration, as AI begins to be incorporated into clinical practice. This is to ensure that the high calibre of professional standards we work by continue to be met and exceeded.

Below are some key comments and concerns that ASMIRT would like to provide to RANZCR for consideration. For ease of reading, each point is broken into the respective principles outlined in the document.

### Principle one: Safety

ASMIRT believes that the principal of safety should not only be related to evidence-based systems. As ML and AI tools become more profitable, the lines between patient care and mass-commercialisation can be blurred. ASMIRT recommends addition of a statement declaring that the development of such devices/tools should ultimately benefit both the patient and society.

### Principle two: Avoidance of Bias

ASMIRT recommends that vendors who develop these tools should clearly state a 'purpose of intended use' when delivering and advertising products, as to avoid misleading statements or incorrect application.

### Principle Three: Transparency and Explainability

ASMIRT recommends that researchers invest time into 'Explainable AI' as an essential avenue of the overall product. If the product is to benefit the patient overall, there should be a level of transparency as to how a decision is made.

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ASMIRT would encourage that experts in the field of AI and ML (not necessarily contained within the medical radiations professions) be consulted when interpreting results and conducting research. ASMIRT believes that this would assist in developing the understanding and skills of practitioners in this area. Having AI systems that are universally simplified at the user interface will be crucial in ensuring successful adoption and integration.

## **Principle Four: Privacy and Protection of Data**

ASMIRT welcome the notion that 'Patient data must not be transferred from the clinical environment at which care is provided without the patient's consent or approval from an ethics board.' However, it would be beneficial to recommend that ethics boards consider the rapidly changing landscape of research as it relates to mass data and AI. As AI training requires abundant sources of data for analysis, ethical committees must contemplate the benefits to society such data sets will contribute, versus the risk of a suboptimal AI tool trained on an inadequate patient population. Moreover, the cost of de-identifying mass sets of Digital Imaging and Communications in Medicine (DICOM) images can be timely and should be further explored in terms of efficiency.

As patient data becomes one of the most valuable aspects of this avenue of research, radiologists/radiation oncologists, and ethic review boards need to consider if the use of such data will be of more significant benefit to the patient or the commercial interests of the company.

## **Principle Five: Decision Making on Diagnosis and Treatment**

No pertinent points to be made.

## **Principle Six: Liability for Decisions Made**

ASMIRT agrees with this point and would like to stress that as AI tools become fully automated, a proportion of responsibility should rest on the supplier of that tool.

## **Principle Seven: Application of Human Values**

We would again like to emphasise that the overall goal in implementing these tools would be for the benefit of the patient.

## **Principle Eight: Governance**

No pertinent points to be made.

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