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Advancements in AI Training and Education for a Future-Ready Healthcare System

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Abstract : Background: Radiologists and radiographers (RR) need to educate themselves and their colleagues to ensure that AI is integrated safely, useful, and in a meaningful way with the direction it always benefits the patients. AI education and training are fundamental to the way RR work and interact with it, such that they feel confident using it as part of their clinical practice in a way they understand it. Methodology: This exploratory research will outline the current educational and training gaps for radiographers and radiologists in AI radiology diagnostics. It will review the status, skills, challenges of educating and teaching. Understanding the use of artificial intelligence within daily clinical practice, why it is fundamental, and justification on why learning about AI is essential for wider adoption. Results: The current knowledge among RR is very sparse, country dependent, and with radiologists being the majority of the end-users for AI, their targeted training and learning AI opportunities surpass the ones available to radiographers. There are many papers that suggest there is a lack of knowledge, understanding, and training of AI in radiology amongst RR, and because of this, they are unable to comprehend exactly how AI works, integrates, benefits of using it, and its limitations. There is an indication they wish to receive specific training; however, both professions need to actively engage in learning about it and develop the skills that enable them to effectively use it. There is expected variability amongst the profession on their degree of commitment to AI as most don't understand its value; this only adds to the need to train and educate RR. Currently, there is little AI teaching in either undergraduate or postgraduate study programs, and it is not readily available. In addition to this, there are other training programs, courses, workshops, and seminars available; most of these are short and one session rather than a continuation of learning which cover a basic understanding of AI and peripheral topics such as ethics, legal, and potential of AI. There appears to be an obvious gap between the content of what the training program offers and what the RR needs and wants to learn. Due to this, there is a risk of ineffective learning outcomes and attendees feeling a lack of clarity and depth of understanding of the practicality of using AI in a clinical environment. Conclusion: Education, training, and courses need to have defined learning outcomes with relevant concepts, ensuring theory and practice are taught as a continuation of the learning process based on use cases specific to a clinical working environment. Undergraduate and postgraduate courses should be developed robustly, ensuring the delivery of it is with expertise within that field; in addition, training and other programs should be delivered as a way of continued professional development and aligned with accredited institutions for a degree of quality assurance.

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