

Royal College of Radiologists briefing on AI to support auto-contouring in radiotherapy

The Royal College of Radiologists sees immense value in the use of AI tools to support auto-contouring, boosting clinicians' productivity and reducing delays for patients. We urge the Government to ensure effective national uptake of this software, through a moderate investment in technology and a systematic, equitable approach to implementation.

Deploying AI tools in radiotherapy departments could boost productivity and reduce delays for patients

AI-powered auto-contouring software (AIAC) can help oncologists speed up and boost the accuracy of radiotherapy treatment planning, getting patients to treatment faster. As AIAC evolves it will enable oncologists to define cancers more accurately so treatment can be more effective, improving cure rates and reducing side effects.

A recent audit found that AIAC can reduce the time from CT to plan completion by up to nine days¹. Clinical oncologists found that it improved their productivity by reducing contouring time. This is significant given the persistent delays in patient access to radiotherapy: in 2024 just 38% of patients starting radiotherapy did so within two months of an urgent referral for suspected cancer, against a national target of 85%. We face a 15% shortfall of clinical oncologists, and so it is paramount that we take any action available that could boost productivity and support retention, by improving their work-life balance. Reducing contouring time could also free up time for oncologists to spend on leadership, research or service improvement, elements of the role which are all restricted by clinical demands.

Additional funding would support national spread, reducing inequalities

We are supportive of funding for AIAC being included in the upcoming spending review, in the region of £15-20m. This relatively small amount of funding would go far, supporting national coverage of this technology – thereby ensuring all oncology departments and all cancer patients can benefit. Furthermore, a national approach would represent better value for money, with stronger negotiating power.

Unpublished data from the RCR's 2024 census (collected Oct-Dec 2024) found that 63% of cancer centres have deployed AI tools within the past year, mostly auto-contouring tools. Many Heads of Service reported benefits to its adoption, although some centres did not find benefit. Cheaper tools, a lack of training or poor integration with existing IT systems can all be factors behind centres not finding benefit in AIAC² – factors which could be mitigated through a well-planned national programme for AIAC. Uneven adoption and implementation of such tools is also a concern for clinical oncologists³.

Implementation of AI in radiotherapy

This funding should make provision for ongoing licensing, validation, implementation, monitoring, programme metrics and a national team of experts to advise. The RCR is happy to advise and are well-placed to – with strong links with leading clinical oncologists who have pioneered the deployment of AI tools, and decades of experience in audit, clinical guidance and developing educational resources.

¹ <https://pubmed.ncbi.nlm.nih.gov/39705202/>

² <https://www.rcr.ac.uk/our-services/all-our-publications/clinical-oncology-publications/auto-contouring-in-radiotherapy/>

³ <https://pubmed.ncbi.nlm.nih.gov/36725406/>