

OC-0603 A 2018 IPEM audit of MRI in external beam radiotherapy treatment planning in the UK

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Purpose or Objective

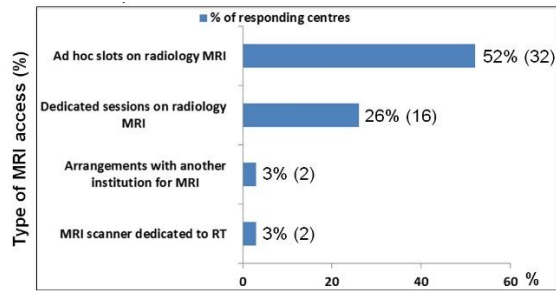
Interest in MRI for external beam radiotherapy (EBRT) planning is growing, as is the need for consensus guidelines for its use in the UK. In response to this, IPEM will report guidelines on MRI use for EBRT planning. As a first step, an audit has been performed to assess the current UK landscape of MRI in EBRT and the results are presented here.

Material and Methods

IPEM has supported a multidisciplinary working group, who developed a survey to assess the current landscape and needs of institutions regarding MRI in EBRT. The survey was split into six sections covering: institution details and MRI access; MRI use at the institution; MRI to CT registration; commissioning, QA and safety of MRI scanners; workflow, staffing and training; and, future applications of MRI. The survey was sent to 71 UK departments (63 NHS and 8 private groups) in June 2018 and closed after 8 weeks.

Results

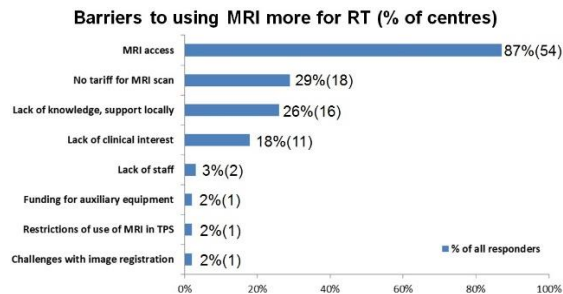
Responses were obtained from 62/71 centres (87%) with good engagement from both NHS centres (89%) and private groups (75%). Of the responders, 94% use MRI for radiotherapy treatment planning taken from PACs, potentially acquired at another institution or not optimised for radiotherapy purposes. 69% of responders have some access to an MRI scanner for EBRT, ie in some format where they have control over the MRI acquisition, see figure. It was reported that there are only two dedicated MRI-simulators in the UK.



All centres using MRI in EBRT use rigid MRI to CT registration and two centres are currently using deformable image registration in addition. Commissioning and QA of image registration and MRI for EBRT showed large inter-centre heterogeneity caused by a lack of guidance.

Physics support for setting up a new MRI for EBRT service is varied across the UK with links with radiology being very important and 23% of centres reporting no support from physics staff with specialist MRI knowledge.

The largest reported barrier to utilising MRI further is a lack of MRI access (87% of centres) but a large proportion of all concerns are financially driven with a lack of tariff meaning centres do not get reimbursed for an MRI scan, see figure.



Looking forward, within the next five years, 37% of centres intend to use functional MRI, 38% of centres are planning for an MRI-simulator, 16% of centres are planning to utilise MRI-only radiotherapy and 10% are planning for an MRI-linac (on top of the 3% that currently have access).

Conclusion

The current use of MRI for EBRT in the UK was audited. More than 2 in 3 of centres have some form of MRI access, but there are only 2 MRI-simulators at present. Collaboration with radiology departments is vital for both MRI access and staff support. The main barriers to fully integrate MRI are financially driven and a lack of tariff resulting in limited access. Knowledge gaps have been identified such as the lack of standardised QA guidance that will be addressed in the IPEM guidelines.