

SHORT PAPER SESSION E2

E2.1 Introducing open-face mask immobilisation for radical and palliative brain radiotherapy - a service evaluation

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Introduction

Brain metastases occur in around 20% of cancer patients, making precise and reproducible radiotherapy essential. Closed-face thermoplastic masks (CFMs) effectively immobilise patients but restrict facial visibility, limiting surface-guided radiotherapy (SGRT). SGRT improves setup accuracy and enables real-time motion monitoring, creating a need for immobilisation solutions that allow unobstructed tracking. Open-face masks (OFMs) support SGRT and may reduce anxiety and claustrophobia associated with CFMs. This study evaluates the implementation and performance of OFMs for brain radiotherapy in a UK centre.

Methods

An options appraisal compared OFM systems for compatibility with planning workflows, mould room processes, and SGRT integration. Ten patients using CFMs were compared with ten using OFMs. Pre- and post-treatment cone-beam CT (CBCT) images were acquired for each fraction. Translational and rotational setup errors and intrafraction motion were analysed to quantify systematic and random components.

Results

OFMs reduced systematic setup errors across all translational axes, especially lateral (0.16 → 0.03 mm) and longitudinal (0.24 → -0.09 mm). Random errors were similar, with minor reductions (<0.02 mm). Small increases in X and Y rotational variability were observed but remained submillimetre and within departmental tolerances. Post-correction residual errors were minimal for both mask types. OFMs were easy to mould, required no workflow changes, and integrated effectively with SGRT.

Conclusion:

OFMs provide setup accuracy comparable to, and in some axes better than, CFMs while enabling SGRT monitoring and improving patient comfort. These results support their routine use in brain radiotherapy and potential extension to other SGRT-enabled treatments.

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Nixon, J.L., Brown, B., Pigott, A.E., Turner, J., Brown, E., Bernard, A., Wall, L.R., Ward, E.C. and Porceddu, S.V. (2019). A prospective examination of mask anxiety during radiotherapy for head and neck cancer and patient perceptions of management strategies. *Journal of Medical Radiation Sciences*, [online] 66(3), pp.184–190. doi:<https://doi.org/10.1002/jmrs.346>.

Sharkey, M. and Bridge, P. (2025). A systematic review of open face versus mask less surface guided radiotherapy for patients undergoing radiotherapy for head, neck and brain tumours. *Journal of Radiotherapy in Practice*, [online] 24.

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E2.2 Towards a sustainable, innovative and person-centred radiotherapy funding model - insights from a three paper commentary series

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Background

As specialised services transfer to Integrated Care Boards (ICBs), radiotherapy funding faces increasing structural pressures. A recent three-paper commentary series explored the radiotherapy tariff, capital investment needs and the costs associated with late effects. Collectively, the papers highlight the need for a coherent and sustainable funding approach that supports innovation, enables timely equipment replacement and better reflects the needs of people living with and beyond cancer.

Purpose

This synthesis aims to bring together the insights and recommendations from the series to inform policy, commissioning and operational decision-making as radiotherapy responsibilities transition to ICBs.

Methods

The series drew on national policy context, expert consensus and service-level operational insight. Each paper examined a key element of the funding landscape: the impact of activity-based reimbursement on advanced radiotherapy delivery; challenges related to capital investment and equipment replacement cycles; and the requirements for integrating survivorship and late-effects services into funding models.

Results

Several consistent themes emerged. Current tariff structures do not reliably support advanced, personalised or adaptive radiotherapy. Capital funding remains uncertain, with ageing equipment and unclear long-term investment mechanisms. Costs linked to survivorship and late effects are increasingly significant yet are not consistently incorporated into commissioning approaches. These gaps risk limiting innovation, exacerbating unwarranted variation and undermining service resilience.

Conclusion

A sustainable radiotherapy funding model requires aligned tariff reform, protected capital investment and full recognition of late-effects needs. As responsibilities move to ICBs, these elements will be essential to ensuring equitable access, service modernisation and a person-centred approach.

E2.3 A single centre intrauterine brachytherapy experience based co-design project for quality improvement

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Background

Intrauterine brachytherapy (IBT) is a complex multi-disciplinary element of curative treatment for cervical cancer¹. IBT is consistently associated with significant physical and psychological distress. Patient experiences highlight anticipatory anxiety, relational safety, and cumulative trauma as key contributors². Experience-based co-design (EBCD) offers a structured methodology to embed patient and staff experience into local quality improvement.

Method

An EBCD quality improvement project was conducted to explore and improve the experiences of IBT. Staff (n=6) and patients (n=9) participated in semi-structured interviews with patient interviews videorecorded. Observation of the IBT pathway was undertaken to enhance contextual understanding. Interviews were thematically analysed and a 30-minute trigger film produced from patient narratives. Staff and patient workshops were held to identify priorities for change followed by a joint stakeholder event involving patients, multidisciplinary staff and senior managers to co-design improvement actions.

Results

Key patient themes included anticipatory anxiety, pain management, information needs, relational safety and long-term psychological impact. Staff themes highlighted emotional impact on staff, service constraints and training needs. Co-designed priorities included service redesign, improved pain management, personalised information provision, enhanced psychological support, staff support mechanisms and targeted training initiatives.

Conclusion

This project demonstrates EBCD as an effective approach for identifying gaps between clinical assumptions and lived experience in IBT. Embedding patient and staff voices guides local service improvements within the context of available resources and patient priorities. EBCD provides a valuable framework for quality improvement in complex cancer care pathways.

1. Reed, N. Balega, J, Barwik T et al (2021). British Gynaecological Cancer Society (BGCS) Cervical Cancer guidelines: Recommendations for practice. *European Journal of Obstetrics & Gynaecology & Reproductive Biology*, 256, 433-465.

2. Humphrey, P, Dures, E, Hoskin, P, & Cramp, F. (2024). Patient Experiences of Brachytherapy for Locally Advanced Cervical Cancer: Hearing the Patient Voice Through Qualitative Interviews. *International Journal of Radiation Oncology*Biophysics*, 119(3), 902–911.

E2.4 Identify and implement initiatives that facilitate professional development and embed radiographer-led research throughout Scotland – INNOVATE-RADSCOT

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Background

Research involvement is pivotal for service improvement and professional development of the therapeutic radiographer (RTT) role. Despite a desire to participate in research, our previous nationwide survey reported time, workload and lack of support as barriers to RTT-led research [1]. Continuous technical developments in radiotherapy (RT) require research expertise to produce safe and accurate workflows to improve clinical outcomes. This study aimed to identify initiatives to facilitate and support RTT-led research.

Methods

Focus group (FG) questions were developed to explore the low- or neutrally-scored responses in our national survey [1]. Relevant FG questions were developed and validated using the content validity index (CVI) by 8 research-experienced RTTs across Scotland. Low CVI scores (<0.83) were amended and re-piloted. All RTTs working in Scottish RT departments were invited to participate. Sessions were conducted in all Scottish RT centres (n=5), facilitated by two research RTTs and were audio-recorded and transcribed for thematic analysis [2]. An adapted competing values framework (CVF) was used to develop future recommendations [3].

Results

All 315 RTT across Scotland were invited. 13 FG sessions, with a total of 73 participants were completed between July and September 2025. Five key themes were identified; these are reported in table 1, with supporting quotes and identified initiatives (table 1).

Conclusion

This work provides national recommendations and implementation initiatives that have been derived through RTT feedback, ensuring that all departments were key stakeholders. These initiatives will be implemented throughout Scotland, with future work showing their impact.

Theme	Supporting quotes	Initiatives
Lack of time, resources, and skills as barriers	<i>"I think the thought of being involved can be very, overwhelmingly scary. So I think some kind of education to take that fear out."</i>	Introduction of CPD/research time, giving staff allocated research time on a rotational basis. E-learning modules created by research radiographers with an introduction to research terms and skills.
Communication	<i>"We never hear back about the stuff people are doing. There is so much out there that could be getting done but we just don't know about it."</i>	Establishment of a collaborative team who communicate and share knowledge and ideas with the wider team.
Relevance to role	<i>"So a change in practice maybe or a change in technique or something that you can see sort of the improvements, but does that make sense like it's going to better the staff and the patients."</i>	Nationwide MS Teams channel including all five Scottish Centres, to enable collaboration, share role-relevant opportunities and sources of funding. Collaborative approach between teams to share technique implementations and treatment outcomes etc.
Flexibility	<i>"I think classed as not working if you're not sitting at a unit doing a weekly check or some imaging or treating a patient. And that's not true at all."</i>	Research time via rota to fit around clinical duties and staff availability, and recorded to ensure staff receive equal allocation.
Culture Support	<i>"I think there is a cultural thing ... if you're more junior and new to the job you don't expect the same."</i>	Coaching, mentorship and facilitation through networking and communication, promoting a team-building and supportive environment.

Table 1: Summary of themes identified and initiatives developed upon thematic analysis.

1. Paterson, A., Devlin, L., Mitchell, J., Ogg, J., Farnan, K., Coupland, S. and Duffton, A., 2024. Survey of research attitudes of RTTs working in Scotland: A Scottish radiographer research forum collaboration. Technical Innovations Patient Support in Radiation Oncology, 30, p.100248.
2. Braun, V. and Clarke, V., 2006. Using thematic analysis in psychology. Qualitative research in psychology, 3(2), pp.77-101.
3. Gerrish, K., Ashworth, P., Lacey, A., Bailey, J., Cooke, J., Kendall, S. and McNeilly, E., 2007. Factors influencing the development of evidence-based practice: a research tool. Journal of advanced nursing, 57(3), pp.328-338.
4. Gerrish, K., Guillaume, L., Kirshbaum, M., McDonnell, A., Tod, A. and Nolan, M., 2011. Factors influencing the contribution of advanced practice nurses to promoting evidence-based practice among front-line nurses: findings from a cross-sectional survey. Journal of advanced nursing, 67(5), pp.1079-1090.

E2.5 Radiotherapy treatment and beyond – mapping late effects service provision in England

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Aim / Purpose

To map radiotherapy-specific late effects (RLE) services across England and evaluate service provision, workforce models, referral pathways and funding structures, in order to understand how person-centred survivorship care is delivered within radiotherapy.

Methods

A national survey was distributed to service managers across all 52 NHS radiotherapy providers in England (May–July 2024). Quantitative data were analysed descriptively, and qualitative free-text responses underwent inductive thematic analysis.

Results

Thirty-one centres responded (60%). Just over half (55%) reported having an established radiotherapy-specific late effects service. Provision varied considerably by disease site: most services supported pelvic RLEs, while far fewer offered pathways for head and neck, breast, lung, paediatric or TYA survivors. Services were predominantly Therapeutic Radiographer-led, with many dependent on short-term or charitable funding, raising concerns regarding long-term sustainability. Referral pathways were inconsistent, particularly for primary care and self-referrals. Qualitative themes highlighted significant unmet need, workforce shortages, limited access to specialist expertise and the absence of national guidance to support equitable and consistent service delivery.

Conclusion

This first national mapping of RLE provision in England demonstrates substantial regional variation and ongoing barriers to delivering sustainable, person-centred survivorship care. As radiotherapy continues to advance technologically, clear national guidance, secure commissioning arrangements and the routine integration of patient-reported outcome measures (PROMs) into digital workflows will be essential to ensure that the long-term experiences of people living with late effects remain central to radiotherapy practice.
