Research recommendations for review question: How effective is radiotherapy, including both fractionated and unfractionated radiotherapy, for the manage-ment of spinal metastases, direct malignant infiltration of the spine or associ-ated spinal cord compression?

K.1.1 Research recommendation

How effective is SABR compared to standard RT in the postoperative treatment of MSCC?

K.1.2 Why this is important

There is evidence that SABR technology is more effective than conventional RT (EBRT or 3D-CRT) in reducing pain in people with painful spinal bone metastases (without spinal cord compression). However, no evidence was identified about the use of SABR for people with cord compression. Extending the evidence base to this group of people would potentially provide the opportunity for further treatment options for people with MSCC.

K.1.3 Rationale for research recommendation

Table 15: Research recommendation rationale

Importance to 'patients' or the population	MSCC is an acute medical emergency and treatment for this is a priority with timely effective treatment having the potential to reduce pain and increase survival and quality of life.
Relevance to NICE guidance	The relative absence of evidence regarding this topic currently restricts NICE guidance from making specific recommendations about SABR for the treatment of MSCC. The outcome of this research would allow such recommendations to be developed and become part of NICE guidance

Relevance to the NHS	More timely and effective cancer treatment is relevant to the NHS because it can improve survival and quality of life.
National priorities	Priority 3.62 of the NHS Long Term plan: "Safer and more precise treatments including advanced radiotherapy techniques and immunotherapies will continue to support improvements in survival rates. We will complete the £130 million upgrade of radiotherapy machines across England and commission the NHS new state-of-the-art Proton Beam facilities in London and Reforms to the specialised commissioning payments for radiotherapy hypofractionation will be introduced to support further equipment upgrades. Faster, smarter and effective radiotherapy, supported by greater networking of specialised expertise, will mean more patients are offered curative treatment, with fewer side effects and shorter treatment times. Starting with ovarian cancer, we will ensure greater access to specialist expertise and knowledge in the treatment of cancers where there are fewer or more risky treatment options."
Current evidence base	The systematic review did not identify evidence specifically for MSCC whilst there was evidence that this technology showed some effectiveness in reducing pain in people with painful spinal bone metastases.
Equality considerations	Even though this technology is available in some centres (because it is used in the treatment of cancers for other remits), it is not currently used for the treatment of MSCC. There may therefore be geographical inequalities related to this.
Feasibility	Time pressures are great with MSCC treatment with it being an oncologic emergency, with SABR being a technically demanding and time-consuming process, this will prove a logistical challenge to implement in an emergency situation. Such events tend to happen over weekends when staff availability could be a major practical issue also in the context of SABR being a resource intense process Numbers of people with MSCC are relatively low compared to the overall number of people with cancer and recruitment may therefore be difficult. However, otherwise it would be feasible to carry out such research - multicentre or multinational study likely to be needed.

MSCC: metastatic spinal cord compression; SABR: stereotactic ablative body radiation

K.1.4 Modified PICO table

Table 16: Research recommendation modified PICO table

Population	People with MSCC. (Including those with radiographical MSCC without neurological symptoms)
Intervention	SABR combined with surgery
Comparator	EBRT combined with surgery

Outcomes	• Health related quality of life
	• Neurological and functional status including:
	  ○ Bowel & bladder function
	  ○ Mobility or ambulatory status
	• Overall survival

	• Pain
Study design	RCT or observational study
Timeframe	9 months
Additional information	Observational studies will need to adjust for baseline differences in patient groups such as: site of primary cancer, number of MSCC sites, location of spinal metastases, ambulatory status and performance status

EBRT: external beam radiotherapy; MSCC: metastatic spinal cord compression; SABR: stereotactic ablative body radiation