

Quality Improvement: Saving time without compromising quality

Using an abbreviated MR brain protocol in
Melanoma surveillance.

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Background

- 324,635 people are diagnosed with melanoma globally every year.¹
- Globally, the recommendations for surveillance imaging after diagnosis and treatment of melanoma are slightly different. See Table 1 for an overview.

UK – NICE ²	European – ESMO ³	American – JAAD ⁴
<p>National Institute for Health and Care Excellence (NICE):</p> <ul style="list-style-type: none"> - Stage IIB and above – CT of head and neck+TAP every six months in years 1-3 post treatment and annually for years 4 + 5 - Consider Brain MRI in IIIC and above - Those on adjuvant systemic therapy should have surveillance every 3-4 months. 	<p>European Society for Medical Oncology (ESMO) do not have guidelines regarding timing of surveillance imaging, but provide general recommendations for monitoring higher risk patients</p>	<p>Journal of the American Academy of Dermatology (JAAD) suggest that surveillance imaging be considered in high risk patients, with frequency determined by to risk of disease recurrence.</p>

Table 1: Guidelines for surveillance imaging in melanoma

Background

- In England, national guidelines are published by National Institute for Health and Care Excellence (NICE). In January 2022, new Guidelines for management of Melanoma were published.²
- At the Royal Marsden Hospital (RMH), we perform approximately 900 MRI brain scans per year for patients with melanoma.
- **In short - new guidelines are increasing capacity pressures on radiology departments.**

Quality Improvement Question

- Can a faster protocol save scanner time without compromising diagnostic quality and safety?

Methods:

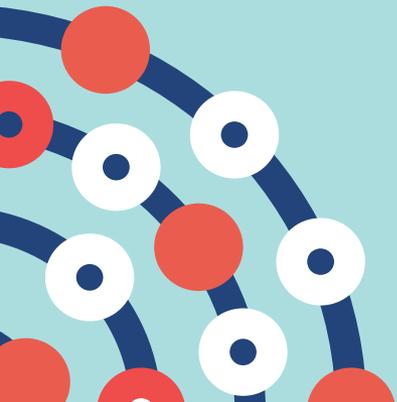
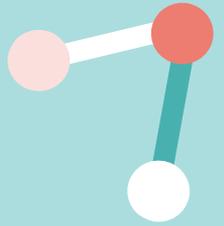
The Plan Do Study Act method was used within a single tertiary referral cancer centre.

An abbreviated MRI head protocol was constructed (volumetric T1 post contrast, axial FLAIR post contrast and diffusion weighted MRI; omitting standard axial T2 and pre contrast T1 volumetric sequences) and inclusion criteria agreed (high risk asymptomatic melanoma patients with previous normal standard MRI head).

	Previous 'long' protocol	New 'short' protocol
Sequences	Volumetric precon T1, Volumetric T1+C, Axial T2, Axial FLAIR +C, DWI	Volumetric T1+C, Axial FLAIR +C, DWI
Time	55mins	40mins

Intervention:

The abbreviated MRI head protocol was used for 3 months. Data recorded included number of abbreviated protocols conducted, scan findings, recalls, follow up findings. Reviews were conducted bimonthly. Following data review this was selected as standard practice. A sustainability/follow on review was conducted at 2 years.



Results:

- In 2019, 144 patients were scanned over 3 months utilising the abbreviated MR head protocol. There were 0 recalls, 2% positive scans for intracranial metastases and 36 scanning hours were saved compared to standard MRI. Using 2018 accounting data, this translates to £55,209 additional net income annually.
- In 2021, 128 patients were scanned over 3 months with the abbreviated protocol. There were 0 recalls, 1% scans positive for intracranial metastases and 32 scanning hours were saved, equating to 128 hours in a year (financial information from that quarter not available at time of writing).



Conclusions:

The use of an abbreviated MRI Brain protocol in the surveillance of asymptomatic high risk melanoma patients is safe, effective and efficient. This saves on average, 34 hours of MRI scanning time over 3 months in a tertiary referral cancer centre.

Abbreviated MRI brain protocols could be considered for screening other malignancies.

With an ever increasing demand for radiology services imaging targeted to the dedicated clinical needs of the patient relieves capacity pressures and reduces the scan time duration for patients.



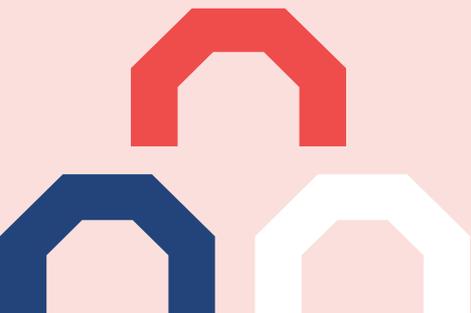
This quality improvement project demonstrates the effectiveness of marginal gains when applied to high volume examinations.



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