**Timeframe of early post-operative MRI following the resection of high grade gliomas**

**Descriptor:**

The following template presents a method for review of imaging performed in the early post-operative period following the resection of high grade gliomas within your neuroradiology department and whether a local standard is met.

**Background:**

Tissue enhancement detected on early (<72 hours) post-operative MR imaging (EPMRI), following the resection of high grade gliomas (HGGs) has long considered to represent a residual tumour rather than reactive, benign post-surgical enhancement [1]. More recent retrospective radiological studies have however demonstrated that:

   a) Enhancement is often seen within the first 24 hours in a large percentage of patients who may or may not have residual tumour

   b) It is the pattern of enhancement itself rather than its presence which is the more important indicator of the presence of residual tumour [2-4]. This latter observation is increasingly considered to be the better indicator of patients who will go on to demonstrate early tumour recurrence in the absence of unequivocal residual tumour identified on MRI.

Nevertheless, there are no definitive guidelines on when exactly EPMRI should be performed and neurosurgical teams often aim for MRI within 72 hours of surgery, possibly because patients may not be clinically stable for MRI immediately post-operatively. For this group of patients for which EPMRI is required to plan adjuvant chemoradiotherapy, the objective of this audit is to determine whether:

   a) Local standards exist within your neuroradiology department for EPMRI in newly operated HGGs

   b) To audit whether your department meets the local standard

## The Cycle

**The standard:**

The following questions should be answered:

1. **Does your neuroradiology department have a documented protocol for post-operative imaging in newly operated HGGs and a timeframe within which this should be performed?**

2. **Is this protocol available to the neurosurgical department and to the MRI department performing the scans?**

If **yes**, then the standard for the audit will be:

• 'EPMRI should be performed within the timeframe specified within the MRI protocol of your department and should include all specified MRI sequences'

**Target:**

90%

## Assess local practice

**Indicators:**

1) Duration from the date/timethat the **MRI request was placed** until the date/time the **MRI study was performed**

2) Duration from **surgery** until when the **MRI study was performed**

3) **MRI sequences** performed (compared with those specified in your departmental protocol)

**Data items to be collected:**

Retrospective data collection:

1. From the weekly neuro-oncology multi-disciplinary meeting records, identify all patients who have undergone resection of a HGG over a 3 month period

2. From patient electronic records, for each patient record the **date of surgery**and the **type of surgical procedure**(resection vs other surgical procedure vs biopsy)

3. For all those patients having undergone resection from RIS/PACS document the following:

**• If EPMRI performed: Yes/No**

**• Date/time of MRI request placed**

**• Date/time MRI performed**

**• MRI sequences performed**

4. Calculate duration between a) request to MRI b) time of surgery to MRI

5. Document any neuroradiology entries as to why imaging may have been delayed and/or the MRI protocol could not be completed e.g. patient clinically unstable for/during MRI

**Suggested number:**

Aim for the total number of HGGs having undergone resection over a 3 month period.

**Suggestions for change if target not met:**

**1.**

a) For those cases in which the **timeframe standards were not met**, identify:

- If allocation of in-patient scanning slots was reduced at the time of EPMRI request

- If any clinical reasons prohibited imaging within the timeframe

- Any delay by the neurosurgical team in a) informing the neuroradiology department of the need for EPMRI or b) placing the MRI request (ideally the request should be placed as early as possible)

b) For those cases in which the **sequence standard was not met**, identify any documented reasons as to why

**2.**

• Aim to present the findings at the local clinical governance meeting for the neuroradiology department and decide on methods to accommodate urgent inpatient MRI

• If imaging is not performed within 72 hours of surgery due to a delay in the clinical team requesting EPMRI, consider also presenting the results of the audit to your neurosurgical department

**Resources:**

1. Review of neuro-oncology multi-disciplinary meeting records

2. Review of electronic patient records

3. Review of RIS/PACS

[**epmri\_for\_hgg\_case\_selection\_flow\_chart.pdf**](https://www.rcr.ac.uk/sites/default/files/audit_template/epmri_for_hgg_case_selection_flow_chart_0.pdf)PDF - 46.81 KB

**References:**

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**Submitted by:**

Dr Adam Kenji Yamamoto

**Co-authors:**

Dr Richard Warne

Dr Steffi Thust

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