



## MRI of the head for unexplained seizure(s)

### MBS item description

Referral by a medical practitioner (excluding a specialist or consultant physician) for a scan of head for a patient 16 years or older for:

- **unexplained seizure(s)** (R) (K) (Contrast) (Anaes.)

Although neuroimaging is indicated for most new onset seizures in adults, there is insufficient evidence to suggest imaging improves health outcomes.

MRI is the preferred imaging modality unless urgent assessment is required, when CT is recommended due to its speed and accessibility.

MRI is highly sensitive for detecting structural brain abnormalities, including incidental lesions, which may result in further unnecessary anxiety and investigations.

### About seizures

Here we are assuming differentiation has already been made between seizure and non-seizure events such as syncope, although this can be a challenge.

There are two main seizure types: generalised; and focal. The type of seizure influences investigations, prognosis and treatment choices.

Determining seizure type is best done by close patient-attention and eyewitness descriptions of the event, and with the findings of an EEG done soon after the seizure.

More than 50% of individuals who experience a seizure will not have a second occurrence. However, patients with epileptic discharges on EEG have up to a 90% risk of recurrence.

### Seizures and MRI

Neuroimaging should be considered as part of the routine neurodiagnostic evaluation of adults presenting with an apparently unprovoked first seizure.

MRI has a higher yield than CT and is the preferred imaging modality in non-emergency situations.

However, an MRI is not always required. Idiopathic generalised epilepsy is not associated with an increased prevalence of brain lesions. If this can be confidently diagnosed on history, examination and with generalised epileptic discharges on EEG, the patient does not require imaging.

Neuroimaging has been shown to detect lesions in 21–37% of patients presenting with seizures. Not all of these abnormalities are epileptogenic, and only a minority of these lesions require treatment.

Before referring a patient for MR imaging, it is important to discuss the possible outcomes and impacts of the scan: a causative lesion could be identified; no lesions may be detected; or incidental abnormalities could be found.