1.a First Seizure or New Seizure type in a patient already known to have Epilepsy

- Investigations:
  - Blood tests: FBC, U&E, Ca, Mg, LFTs (incl GGT), Glu, CRP
  - 12 Lead ECG
  - Venous/arterial blood gas including Glucose
  - Pregnancy test (12-55 year old females, usually by urinary βhCG)
  - Consider urinalysis including drug screen

1.b Indications for CT brain scan in ED for patients with an apparently unprovoked First Seizure

- New focal neurological deficit
- Persistent altered mental state
- Prolonged headache or fever
- Recent head trauma (consider need to image the cervical spine)
- History of immunosuppression, cancer, HIV or suspected HIV
- Anticoagulant use
- Previous stroke or neurological condition making assessment of deviation from baseline uncertain
- New seizure in patients over 65 years old

Consider CT imaging for the first presentation of a seizure in services where the wait for assessment in the First Seizure Clinic is likely to be prolonged
Refer to local First Seizure Clinic

2.a Patient with known Epilepsy presenting with Seizure(s):

- The epilepsy team who cares for the patient, as well as the GP, should be informed when a patient with epilepsy is discharged from the Emergency Department (ED) with seizures.
- If EDs are unable to distinguish which patients presenting with seizures do or do not have a formal diagnosis of epilepsy, then it is acceptable to inform the local epilepsy team of all patients presenting with seizures.
- The patient should be encouraged to contact their epilepsy team for advice on discharge
- If emergency advice is required, the local epilepsy/neurology team should be contacted
Investigations:
- BM
- 12-lead ECG
- Pregnancy test (if indicated)
- Blood tests: FBC, U&E, LFTs, Glu, CRP
- Consider urinalysis including drug screen
- Anti-seizure medication levels to guide treatment where needed, particularly phenytoin or phenobarbitone
- ‘Save Serum’ for consideration of additional anti-seizure medication levels by epilepsy team.

Arrangements should be in place to notify the epilepsy team responsible for the usual management of the patient about the availability of this sample for testing.

2.b. CT brain scan in patients with a pre-existing diagnosis of Epilepsy

In accordance with NICE guidance “Do not carry out a CT scan for people with established epilepsy presenting at an emergency department after a typical seizure, unless there are other concerns” such as:
- New focal neurological deficit
- Persistent altered mental state beyond what is usual for the patient in the post-ictal phase
- Prolonged headache or fever
- Recent significant head trauma
- History of immunosuppression, cancer, HIV or suspected HIV

The threshold for considering CT brain imaging in a patient on anticoagulants should be lower, however seizures in a patient with known epilepsy and who also happens to be taking anticoagulants should not automatically trigger a CT brain scan.