Calling an ambulance need not necessarily turn a seizure into a blue-light flashing emergency. Martin Berry from the College of Paramedics explains how the care and treatment of people with epilepsy is a two-way process between patient and ambulance staff and often results in a call to a neighbour rather than a call to A&E.

Most seizures are not life threatening and will resolve themselves within a short space of time. The London Ambulance Service NHS Trust is called out to around 40 epileptic seizures a day. The standard advice (see Always dial 999 if, page 10) is to call an ambulance if a seizure lasts longer than five minutes, if the person has injured themselves or if it is a first seizure. But making a judgement call is not always easy. If you know the person, you may well know their history and be confident that the seizure is following its routine course and an ambulance is not necessary. But if you see someone you don’t know having a seizure in the street, the decision is not so simple. Witnessing a convulsive seizure can be worrying. You will not know whether it is a first seizure, or how long the person’s seizures tend to last. You may not even be certain it is an epileptic seizure. It can be a natural response to call 999 as quickly as possible. This is where operators at our Emergency Dispatch Centres step in. They will triage the call to determine the condition of the patient and decide whether an ambulance is required. Sometimes a single paramedic will be dispatched in a rapid response car or by motorbike. Where necessary this will be followed by an ambulance with a paramedic and an emergency care assistant (see Who’s who, page 10). The operator or ambulance clinician may decide that an ambulance is not required and, where appropriate, may refer the person to an alternative service such as their own GP. This is likely to be if the person having the seizure is well known to staff and their care plan, drawn up with their epilepsy specialist, states that they do not need to be taken to A&E in the case of a seizure. Because paramedics are frequently called out to attend epileptic seizures, we are very aware that many people prefer not to be taken by ambulance to A&E, preferring instead to recover at home. Contrary to many people’s fears, if an ambulance is called it does not mean you will be automatically transferred to hospital and then have the added challenge of finding your way home.

‘It is so important for anyone who has seizures to carry as much accessible information as possible’

The Joint Royal Colleges Ambulance Liaison Committee (JRCALC) has drawn up clinical practice guidelines which determine the tests and treatment a person is likely to receive if an ambulance is called following a seizure. Wherever possible, we are happy to help people manage their recovery in their own home, calling their GP to let them know what has happened and making sure that appropriate referrals are made. But this is only possible if the person has a well documented history of epilepsy, they are not at risk and they are recovering. There must also be a family member, friend, neighbour or carer who can remain with the person to ensure that if they experience a repeat or prolonged seizure, the ambulance service will be called again.

Of course not all seizures self resolve and sometimes it is vital that a person is taken to A&E. If it is a first seizure then we always advise that the person should be taken to hospital, as it is important to have tests to establish the cause of the seizure. There can be many reasons for a seizure such as diabetes, cardiac problems, syncope or fainting. It may not be epilepsy.

Similarly, if a person with a history of controlled or infrequent seizures suddenly experiences a cluster of them, they may give you first aid instructions.

If you know the person, try to provide any information that may be useful such as name of GP and medications taken.

If you are at home make sure doors are open so ambulance staff can gain access.

If you do not know the person, any details of what has happened will be helpful.

If the person needs an emergency response, the ambulance service will send either an ambulance, rapid response vehicle, motorbike, cycle response unit, community first responder or a combination of these.

If you know the person, try to provide any information that may be useful such as name of GP and medications taken. If you are at home make sure doors are open so ambulance staff can gain access. If you do not know the person, any details of what has happened will be helpful.

If the seizure has self resolved, the ambulance clinician will make sure the person is well enough to remain at home, check someone is with them, notify their GP and administer oxygen where necessary.

If it is a first seizure or the seizure has not stopped, the ambulance will transport the person to the nearest A&E. A friend or family member can travel with them in the ambulance.
Always dial 999 if:

- it is the person’s first seizure
- they have injured themselves badly
- they have trouble breathing after the seizure has stopped
- one seizure immediately follows another with no recovery in between
- the seizure lasts two minutes longer than is usual for them
- the seizure lasts for more than five minutes.

Who’s who?
A paramedic is the senior healthcare professional on an ambulance and will assess a patient’s condition and give essential treatment.
An emergency care assistant will drive the ambulance and assist the paramedic. They are not qualified with no recovery for continuing seizures.
A community first responder is a volunteer who will attend emergency calls and provide care until the ambulance comes.

We would advise that the person should go to hospital. However, this can be a joint decision between the patient and ambulance staff.
History is vital. We are required to find out as much about what has happened and to get witness accounts and details. Staff are trained to look for medical alert jewellery, identification cards, seizure diaries, medication in fridges or bathroom cabinets and family, friend or carer contact details.
This is why it is so important for anyone who has seizures to carry as much accessible information as possible. Information stored on mobile phones is not always helpful as many phones are password protected. Even if someone has an ICE number (In Case of Emergency) we may not be able to access it. An easily visible ID card in a wallet, pocket or handbag is ideal, with contact details, medication information and type/history of seizures. If you have an epilepsy care plan, this can also be useful.
Where possible, it is important to establish whether a person is diabetic, pregnant, has suffered a head injury or whether there is a history of alcoholism or drug abuse. Any of these could be the cause of the seizure.
If someone is experiencing time critical issues such as breathing difficulties, serious head injury, status epilepticus or an underlying infection, we will transfer them immediately to the nearest suitable hospital, alerting staff in A&E en-route. If there are no time critical issues, we will carry out a more thorough assessment looking for signs of heart arrhythmia, raised temperature, rash, mouth/tongue injury and incontinence.
We will measure blood glucose and oxygen levels and may carry out an electrocardiogram (ECG). All patients who are convulsing or who are having difficulties recovering from a seizure should be given oxygen. In the case of persistent seizures it is important for us to establish whether rectal diazepam has been administered. If the seizures continue or if in the case of status epilepticus, intravenous diazepam should be given.
As paramedics, we will always aim to remain with the person as long as is reasonable to ensure that they are well.

Tests on route may include:
- airways, breathing, circulation, mini neurological examination, glucose levels, status epilepticus, infection.

Where appropriate, clinicians may administer diazepam.

A&E
If the seizure is serious the ambulance staff will alert the hospital on route. If not, the person will be prioritised by the A&E team along with other people who have not arrived by ambulance. A&E will arrange for appropriate tests, treatment and referrals.

Once discharged, it is the responsibility of the person to make their own way home. In some circumstances, hospitals may provide transport for elderly or vulnerable patients.

We will arrange for appropriate tests, treatment and referrals.

Recording seizures with your mobile

After hearing a person’s own account of a seizure, its circumstances and what it felt like, an eye witness account can play a vital role in the diagnosis of their epilepsy.
There are over 40 different types of seizures with many different visual characteristics. Being able to observe a person’s behaviour before, during and after an ‘event’ can help us to determine whether it is likely to be a seizure, the type of seizure, and give important clues as to where in the brain it is likely to have been generated. Being aware of a person’s movements, any noises they may make and any changes to breathing patterns and skin tone can help to build-up a more comprehensive picture of the seizure.

However, seizures rarely happen in the course of a hospital appointment when the neurologist, epilepsy specialist or GP is present. They rarely even happen during prolonged hospital admissions for recording seizures. Even when they do, ‘provoked’ events after drug-withdrawal or sleep deprivation during hospital admissions are not necessarily the same as those that happen during a person’s everyday life. So the healthcare professional must try to build up as complete a picture as possible after the event of what happened.
People who experience a seizure may be able to explain what happens in the lead up to their seizure. They can invariably explain how they feel after a seizure, but the very nature of seizures means they are often unaware of what happens to them during the seizure itself. Sometimes they may have a sense of what has happened to them that has been informed by the observer and it can be difficult to disentangle this from their true experience.
Clinical tests help us to establish whether a seizure is epileptic and generated in the brain. An EEG (electroencephalogram) records electrical activity within the brain. An MRI (magnetic resonance imaging) or CT (computed tomography) scan may help to establish whether a structural abnormality could be causing the seizure to start in a particular part of the brain. But it is the first-hand account from a friend or relative who has witnessed the seizure that is invaluable in diagnosing epilepsy and establishing what type of seizure a person has.
Until recently we have been dependent on people being able to bring along someone to their hospital appointment who has

Mobile phones

The mobile phone has revolutionised the way in which we diagnose epilepsy and the way in which people are able to self manage their condition. It is a means of recording a reliable eye witness account of a seizure, an alarm to remind you to take your medication, an electronic diary to record your seizures and a library of information about living with epilepsy, including advice about first aid. Professor Matthias Koepp explains why it is his favourite 21st century gadget.