Blackout is the term commonly used when someone has experienced a sudden loss of consciousness and quickly recovers. Some specialists prefer the technical term T-LOC (transient loss of consciousness).

A collapse is defined as an abrupt loss of postural tone, with or without an associated loss of consciousness. The research definition of a fall is ‘an event when an individual comes to rest on the ground at a lower level with or without loss of consciousness’. A fall in an older person may be due to a collapse.

Specific causes of loss of consciousness must first be identified or excluded by history, examination and investigation (see box, left for common causes), then treated.

What causes blackouts?
The three main causes are syncope, epilepsy or psychological reasons (circulation and brain electrical activity are preserved). In some cases cause is unknown or only becomes apparent over time. Syncope results in impairment of blood supply to the brain (see box, below right).

Epilepsy is a primary electrical disturbance of the brain that sufficiently disturbs cerebral activity to cause a blackout. Abnormal movements or patterns of behaviours depend on the originating site of electrical disturbance, spread and speed of spread within the brain.

An episode that is syncopal in origin can provoke a secondary electrical disturbance in the brain, manifesting as abnormal movements or seizure. Manifestation of seizures does not equate to a diagnosis of epilepsy, which must be made by an expert.

Individuals with significant psychological problems sometimes have real or apparent T-LOC.

About half the population will have an episode of syncope in their lifetime. The prevalence of epilepsy is about 1 per cent, but estimates suggest up to 30 per cent of adults are misdiagnosed. Syncope and collapse is the sixth most common reason for acute hospital attendance among over-65s in the UK.

A blackout is an alarming event for the individual concerned and those close to them. A first aider or paramedic may be the first to attend and often the patient is taken to A&E for further evaluation.

Routine tests include full blood count, urea and electrolytes, troponin T and blood glucose, plus a resting 12-lead ECG. If there is nothing significant in the history and tests are negative, the patient may be discharged. Older people may be admitted and undergo further tests, such as 24 hour ECG monitoring. A CT or MRI scan of the brain or an EEG may be requested.

Patients usually present in primary care following attendance at A&E or hospital discharge, having had some investigations, and with or without a definitive diagnosis. They may need referral for specialist assessment.

A blackout may have implications for employment or driving (the DVLA provides guidance) and insurers should be informed.
Key questions when taking a history are listed in the box at right. An accurate record of current medication is vital. Is the patient taking all prescribed medication as directed, including correct timing, and is the list of prescribed drugs correct? Inspecting medication in an individual’s home can be informative.

It is important to ask about medication-associated side-effects (eg, dizziness). Drugs for cardiac conditions, antihypertensives and tranquillisers, including antidepressants, are high risk for causing cardiac side-effects (eg, bradycardias due to beta-blockers).

**Include a physical exam**

A basic physical examination must include the rate and rhythm of the radial pulse. Measure blood pressure after the person has been lying down for at least five minutes and repeat within three minutes of standing up. A drop of 20mmHg systolic and 10mmHg diastolic shows significant postural hypotension.

The heart must be examined for murmurs or added sounds; resting 12-lead ECG is mandatory for all.

Blood should be taken for a full blood count, urea and electrolytes, thyroid function tests and blood sugar as a minimum, to exclude anaemia, electrolyte disturbances that may be drug-related, and diabetes.

Consider an underlying neurological cause if there is a history of epilepsy, head injury or neurosurgery, or drowsiness/headache following the episode, and arrange referral to a neurology or epilepsy clinic. A witness to the blackouts should be strongly encouraged to attend the appointment.

If there is a history of CHD, cardiac surgery, a family history of sudden death, loss of consciousness during exercise, or an abnormality on the ECG, an underlying cardiac cause must be considered and referral to a cardiologist or syncope clinic is required.

Falls in older people can occur for many reasons; often several risk factors combine. A fall may be due to a blackout and have associated retrograde amnesia so the patient has no recollection of and may adamantly deny losing consciousness.

In cardioinhibitory carotid sinus hypersensitivity, the carotid gland in the neck is oversensitive. Rapid head movements, such as turning or looking up, cause low blood pressure and a bradycardia, resulting in lightheadedness or a blackout.

If there is no obvious cause for a fall or a history of recurrent falls in an older person, a high index of suspicion of associated blackouts is advisable.

**Further investigation**

Specialist investigations may be needed. Detection of underlying cardiac arrhythmia depends on the frequency of symptoms. Ambulatory monitoring can be carried out for up to 72 hours using a Holter monitor but can have a low diagnostic yield. Event recorders allow monitoring for longer. Implantable loop recorders with a battery life of 18 months can give diagnostic information in 90 per cent of patients.

An echocardiogram provides information on structural abnormalities of the heart, including heart valve abnormalities, cardiomyopathies and the functional state of the heart.

Tilt table testing is useful if neurally mediated syncope is suspected. The patient is strapped to a table, which is raised to an angle (usually 60°) for about 45 minutes to provoke an episode of syncope. Blood pressure and ECG are continuously monitored. There are concerns about sensitivity, specificity and reproducibility of this test.

In terms of general management, reviewing existing medication, including stopping drugs or changing dosages, or improving compliance must be considered. The relative risks of treating a condition and further episodes of blackouts must be weighed up on an individual basis.

An older person with postural hypotension and hypertension should not have their hypertension treated to target, and should be exempt from the relevant quality and outcomes clinical indicator.

Treatment for syncope must be under the supervision of an arrhythmia cardiologist. Permanent pacemakers can be the definitive treatment for bradyarrhythmias and some neurally mediated syncope.

Drugs are used first line for tachyarrhythmias; ablation treatments that destroy abnormal electrical circuits in heart are second line. Implantable cardiac defibrillators may be indicated for certain tachyarrhythmias (eg, ventricular fibrillation).

Epilepsy treatment should be initiated and monitored in the initial stages by a neurologist or a GP with a special interest. Appropriately trained professionals should address psychological problems contributing to blackouts.

If there is nothing untoward in the history, examination and baseline investigations, it is appropriate to reassure, but review the patient if there are further episodes.

### What to ask when taking a history

- Details of the blackout, including when it happened.
- Current medical/health problems.
- Mental health history.
- Past medical history, particularly heart problems.
- Current medication – prescribed and OTC.
- Alcohol and drug history.
- Family history, especially heart problems.
- From a witness – what did they see, etc?

A full list of key questions to ask can be found on the Independent Nurse website: www.independentnurse.co.uk

### Origin and causes of syncope

<table>
<thead>
<tr>
<th>Origin</th>
<th>What happens</th>
<th>Specific causes of syncope</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>Failure of heart pumping action to maintain circulation.</td>
<td>Structural heart disease: aortic stenosis, hypertrophic cardiomyopathy, severe ischaemic left ventricular dysfunction, congenital heart defects.</td>
</tr>
<tr>
<td>Autonomic failure</td>
<td>Failure of blood pressure control mechanism due to lowered peripheral resistance in veins.</td>
<td>Primary: acute (idiopathic), chronic (pure autonomic failure, multiple system atrophy, Parkinson’s disease, diffuse Lewy body disease).</td>
</tr>
<tr>
<td>Reflex syncope or neurally mediated</td>
<td>Improper control of circulation when a specific reflex triggers dilatation of skeletal muscle arterioles, causing postural hypotension and/or slowing of the heart.</td>
<td>Secondary: diabetes, amyloid, trauma, drugs.</td>
</tr>
</tbody>
</table>

### Specific causes of syncope

- Vaso-vagal syncope (common faint): caused by pain or fear.
- Situational: micturition; orthostatic (standing).
- Carotid sinus hypersensitivity: precipitated by rapid turning movements of the head or neck.

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**Clinical Neurology**

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**Reference**