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3 **Transient loss of consciousness (TLoC)**  
4 **management in adults**

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6

**NICE guideline**

7

**Draft for consultation, January 2010**

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9 If you wish to comment on this version of the guideline, please be aware that  
10 all the supporting information and evidence is contained in the full version.

11 Please put line number and page number for each comment.

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13 *[For further information, see chapter 10 of 'The guidelines manual', available*  
14 *from the webboard)]*

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## 1 **Introduction**

2 Transient loss of consciousness (TLoC) is very common – it affects up to half  
3 the population in the UK at some point in their lives. TLoC may be defined as  
4 a spontaneous, transient, loss of consciousness with complete recovery. It is  
5 often described as a 'blackout'. There are a number of causes including  
6 cardiovascular disorders – which are probably the most common –  
7 neurological conditions such as epilepsy, and psychological factors.

8 The diagnosis of the underlying cause of TLoC is often inaccurate, inefficient  
9 and delayed. Misdiagnosis is common; for example, 20–30% of people  
10 thought to have epilepsy have an underlying cardiac cause for their TLoC,  
11 which is not diagnosed – and this is despite many people having inappropriate  
12 and excessive tests. Nevertheless, people who experience TLoC are often  
13 discharged without any clear diagnosis.

14 There is some existing NICE guidance that relates to TLoC; including that on  
15 epilepsy (CG 20), falls (CG 21), dual chamber pacemakers (TA 88) and  
16 implantable cardioverter defibrillators (ICDs; TA 95). While related guidance  
17 on conditions that may contribute to a blackout (TLoC) exist (particularly the  
18 NSF for Coronary Heart Disease, chapter 8 and the European Society of  
19 Cardiology guidelines on syncope), there is no NICE guidance that addresses  
20 the crucial aspects of initial assessment, diagnosis and specialist referral of  
21 people who have had a blackout. People experiencing TLoC may come under  
22 the care of a range of clinicians, and the lack of a clear pathway may  
23 contribute to misdiagnosis and inappropriate treatment.

24 This guideline aims to define the appropriate pathways for the initial  
25 assessment, diagnosis and specialist referral of people who have had TLoC,  
26 so that they receive the correct diagnosis quickly, efficiently and cost-  
27 effectively, leading to a suitable management plan. The approach of the  
28 Guideline Development Group was to produce a guideline in the form of an  
29 algorithm, pointing clinicians and patients towards those areas where  
30 guidance already exists (such as the NICE clinical guideline on epilepsy

1 [CG20]), and providing new guidance in other areas, namely for people with  
2 syncope.

3

#### 4 **Patient-centred care**

5 This guideline offers best practice advice on the care of people who have  
6 experienced transient loss of consciousness (TLoC).

7 Treatment and care should take into account patients' needs and preferences.  
8 People who have experienced TLoC should have the opportunity to make  
9 informed decisions about their care and treatment, in partnership with their  
10 healthcare professionals. If patients do not have the capacity to make  
11 decisions, healthcare professionals should follow the Department of Health's  
12 advice on consent (available from [www.dh.gov.uk/consent](http://www.dh.gov.uk/consent)) and the code of  
13 practice that accompanies the Mental Capacity Act (summary available from  
14 [www.publicguardian.gov.uk](http://www.publicguardian.gov.uk)). In Wales, healthcare professionals should follow  
15 advice on consent from the Welsh Assembly Government (available from  
16 [www.wales.nhs.uk/consent](http://www.wales.nhs.uk/consent)).

17 Good communication between healthcare professionals and patients is  
18 essential. It should be supported by evidence-based written information  
19 tailored to the patient's needs. Treatment and care, and the information  
20 patients are given about it, should be culturally appropriate. It should also be  
21 accessible to people with additional needs such as physical, sensory or  
22 learning disabilities, and to people who do not speak or read English.

23 If the patient agrees, families and carers should have the opportunity to be  
24 involved in decisions about treatment and care.

25 Families and carers should also be given the information and support they  
26 need.

27

28

## 1 **Key priorities for implementation**

### 2 **Initial assessment and diagnosis**

- 3 • Ask the person who has had the suspected TLoC, and any witnesses, to  
4 describe what happened before, during and after the event. Try to contact  
5 witnesses who are not present by telephone. Items to be recorded include  
6 the following.
  - 7 – Circumstances of the event.
  - 8 – Person's posture at outset.
  - 9 – Prodromal symptoms.
  - 10 – Appearance and colour of the person during the event.
  - 11 – Presence or absence of movement during the event.
  - 12 – Whether any tongue-biting or injury occurred during the event.
  - 13 – Duration of the event.
  - 14 – Length of time to recovery.
  - 15 – Presence or absence of confusion during the recovery period. **[1.1.1.1]**
- 16 • Record carefully the information obtained from all accounts of the  
17 suspected TLoC. Include paramedic records with this information. Give  
18 copies of all records to the receiving clinician when care is transferred, and  
19 to the person who had the suspected TLoC. **[1.1.1.2]**
- 20 • Record a 12-lead ECG. When available, use a 12-lead ECG with  
21 automated interpretation. If any abnormality is identified, seek expert  
22 advice. **[1.1.2.2]**
- 23 • Treat as an emergency (within 24 hours) anyone with TLoC who also has  
24 any of the following.
  - 25 – An ECG abnormality (see recommendation 1.1.2.3).
  - 26 – Heart failure.
  - 27 – TLoC on exertion.
  - 28 – Family history of sudden cardiac death in people aged younger than 40  
29 years and/or an inherited cardiac condition.
  - 30 – Aged older than 65 years with no prodromal symptoms.
  - 31 – New or unexplained breathlessness.
  - 32 – A heart murmur.

- 1 If assessed out of hospital send the person to the Emergency Department.  
2 If assessed in the Emergency Department, admit the person to hospital and  
3 arrange a specialist cardiology assessment within 24 hours. **[1.1.3.2]**
- 4 • Diagnose uncomplicated faint (vasovagal syncope) on the basis of the  
5 initial assessment when:
    - 6 – there are no features from the initial assessment that suggest an  
7 alternative diagnosis (note that brief seizure activity can occur during  
8 uncomplicated faints and is not necessarily diagnostic of epilepsy) **and**
    - 9 – there are features strongly suggestive of uncomplicated faint; that is, at  
10 least one of the following features is present ('the six Ps').
      - 11 ◇ **P**osture (prolonged standing or sitting).
      - 12 ◇ **P**rovoking factors (such as pain, fear, emotional distress or a medical  
13 procedure).
      - 14 ◇ **P**rodromal symptoms (such as sweating or feeling warm/hot before  
15 TLoC).
      - 16 ◇ **P**ost-TLoC nausea or vomiting.
      - 17 ◇ **P**ost initial recovery, recurrence of TLoC provoked by sitting or  
18 standing up.
      - 19 ◇ **P**revious similar episodes, in which TLoC has been prevented by lying  
20 down. **[1.1.4.1]**
  - 21 • Refer people who present with one or more of the following features (that  
22 is, features that are strongly suggestive of epileptic seizures) for an  
23 assessment by a specialist in epilepsy; the person should be seen by the  
24 specialist within 4 weeks (see 'The epilepsies: the diagnosis and  
25 management of the epilepsies in adults and children in primary and  
26 secondary care [NICE clinical guideline 20]).
    - 27 – A bitten tongue.
    - 28 – Abnormal behaviour (one or more of: witnessed amnesia for abnormal  
29 behaviour, witnessed unresponsiveness, unusual posturing, or  
30 prolonged limb jerking [note that brief seizure activity can occur during  
31 uncomplicated faints and is not necessarily diagnostic of epilepsy]).
    - 32 – Post-ictal confusion.

1 – Head-turning to one side during TLoC.

2 – Prodromal déjà vu or jamais vu.

3 Consider that the episode may not be related to epilepsy if any of the following  
4 features are present.

5 – Pre-syncope, especially where syncope was avoided by postural  
6 change.

7 – Sweating.

8 – Prolonged standing that appeared to precipitate TLoC. **[1.1.5.1]**

### 9 **Specialist cardiology assessment and diagnosis**

10 • Carry out a specialist cardiology assessment as follows.

11 – Reassess the person's:

12 ◊ detailed history of TLoC including any previous events

13 ◊ medical history and any family history of cardiac disease

14 ◊ drug therapy at the time of TLoC and any subsequent changes.

15 – Conduct a clinical examination, including full cardiovascular examination  
16 and measurement of supine and standing blood pressure.

17 – Repeat 12-lead ECG and examine previous ECG documentation.

18 On the basis of this assessment, assign the person to one of the following  
19 types of syncope: suspected structural heart disease, suspected cardiac  
20 arrhythmic, suspected neurally mediated, or unexplained. Offer further  
21 testing as directed by recommendations 1.2.2.1 to 1.2.2.10. **[1.2.1.1]**

22 • For people with a suspected cardiac arrhythmic cause of syncope, offer an  
23 ambulatory ECG and do not offer a tilt test. The type of ambulatory ECG  
24 offered should be chosen on the basis of the person's history (and, in  
25 particular, frequency) of TLoC.

26 – People with very frequent TLoC (daily or every few days): offer Holter  
27 monitoring (up to 48 hours if necessary). If no further TLoC occurs  
28 during the monitoring period, offer an external event recorder that  
29 provides continuous recording with the facility for the patient to indicate  
30 when a symptomatic event has occurred.

- 1 – People who have less frequent TLoC (every 1–2 weeks): offer an  
2 external event recorder. If the person experiences further TLoC outside  
3 the period of external event recording, offer an implantable event  
4 recorder.
- 5 – People who have TLoC infrequently (less than every 2 weeks): offer an  
6 implantable event recorder. A Holter monitor should not usually be  
7 offered unless there is evidence of a conduction abnormality on the 12-  
8 lead ECG. **[1.2.2.4]**
- 9 • For people who have a clear diagnosis of neurally mediated syncope on  
10 initial assessment, do not offer a tilt test to confirm the diagnosis. **[1.2.2.5]**
- 11 • Offer ambulatory ECG and do not offer a tilt test to people:  
12 – with unexplained syncope who are younger than 60 years of age  
13 – who are aged 60 years or older if carotid sinus massage is not  
14 diagnostic.
- 15 The type of ambulatory ECG offered should be appropriate to the person's  
16 history of TLoC (see recommendation 1.2.2.4). **[1.2.2.9]**

## 1 **1 Guidance**

2 The following guidance is based on the best available evidence. The full  
3 guideline ([add hyperlink]) gives details of the methods and the evidence used  
4 to develop the guidance.

5 This guidance refers to different types of syncope. The following definitions  
6 apply to this guideline. See also the glossary (appendix C) for definitions of  
7 other terms used in this guideline.

- 8 • **Syncope** Transient loss of consciousness due to a reduction in blood  
9 supply to the brain.
- 10 • **Neurally mediated syncope** Sometimes called 'reflex syncope'. Transient  
11 loss of consciousness due to a reflex bradycardia and/or hypotensive  
12 response to a number of causes; these include vasovagal syncope, carotid  
13 sinus syncope, and situational syncope.
- 14 • **Vasovagal syncope** A form of neurally mediated syncope due to  
15 excessive or inappropriate vagal activity. This is often, but not always,  
16 triggered by circumstances such as pain, prolonged standing (especially in  
17 a warm environment), or emotional stress. This commonly presents as an  
18 identifiable 'uncomplicated faint' but can present as sudden unprovoked  
19 syncope.
- 20 • **Carotid sinus syncope** A form of neurally mediated syncope in which  
21 pressure on one or other carotid artery causes syncope.
- 22 • **Situational syncope** A form of neurally mediated syncope occurring in  
23 certain situations, usually involving an increase in intra-abdominal pressure  
24 (for example, cough syncope and micturition syncope).
- 25 • **Cardiac arrhythmic syncope** Syncope caused by a sudden abnormality of  
26 heart rhythm, which may be a bradyarrhythmia (abnormal rhythm with a  
27 slow heart rate) or a tachyarrhythmia (abnormal rhythm with a fast heart  
28 rate).
- 29 • **Exercise-induced syncope** Syncope induced by exercise.
- 30

1 **1.1** ***Initial assessment and diagnosis***

2 **1.1.1** **Gathering information and recording of the suspected**  
3 **transient loss of consciousness (TLoC) event**

4 1.1.1.1 Ask the person who has had the suspected TLoC, and any  
5 witnesses, to describe what happened before, during and after the  
6 event. Try to contact witnesses who are not present by telephone.  
7 Items to be recorded include the following.

- 8 • Circumstances of the event.
- 9 • Person's posture at outset.
- 10 • Prodromal symptoms.
- 11 • Appearance and colour of the person during the event.
- 12 • Presence or absence of movement during the event.
- 13 • Whether any tongue-biting or injury occurred during the event.
- 14 • Duration of the event.
- 15 • Length of time to recovery.
- 16 • Presence or absence of confusion during the recovery period.

17 1.1.1.2 Record carefully the information obtained from all accounts of the  
18 suspected TLoC. Include paramedic records with this information.  
19 Give copies of all records to the receiving clinician when care is  
20 transferred, and to the person who had the suspected TLoC.

21 1.1.1.3 When recording a description of the suspected TLoC from a  
22 witness, take care to ensure that their communication and other  
23 needs are taken into account. This is particularly important when  
24 communicating with a child or young person, or person with special  
25 communication needs.

26 1.1.1.4 Use information gathered from all accounts of the suspected TLoC  
27 (see recommendation 1.1.1.1) to confirm whether or not TLoC has  
28 occurred. If the person definitely did not have TLoC, instigate  
29 suitable management accordingly (for example, if the person is

1 determined to have had a fall, rather than TLoC, refer to ‘Falls: the  
2 assessment and prevention of falls in older people’ [NICE clinical  
3 guideline 21]).

4 **1.1.2 History-taking, clinical examination, 12-lead**  
5 **electrocardiogram (ECG) and other tests for people who**  
6 **have experienced TLoC**

7 1.1.2.1 Assess and record:

- 8
- 9 • details of any previous TLoC, including number and frequency
  - 10 • the person’s medical history and any family history of cardiac  
11 disease (for example, personal history of heart disease and  
12 family history of sudden cardiac death)
  - 13 • current medication
  - 14 • supine and standing blood pressure
  - 15 • vital signs (for example, pulse rate, respiratory rate and  
16 temperature) – repeat if clinically indicated
  - 17 • cardiovascular and neurological examination
  - 18 • resting 12-lead ECG (see recommendations 1.1.2.2 and 1.1.2.3)
  - 19 • any further examination as directed by the person’s history.

20 1.1.2.2 Record a 12-lead ECG. When available, use a 12-lead ECG with  
21 automated interpretation. If any abnormality is identified, seek  
22 expert advice.

23 1.1.2.3 If a 12-lead ECG with automated interpretation is not available,  
24 record a 12-lead ECG and have the reading interpreted by a  
25 healthcare professional who is trained and competent in identifying  
26 the following abnormalities.

- 27 • Conduction abnormality (any degree of heart block).
- 28 • Inappropriate persistent bradycardia.
- 29 • Any ventricular arrhythmia (including ventricular ectopic beats).
- 30 • Long QT (> 450 ms) and short QT (< 350 ms) intervals.
- Brugada syndrome.

- 1 • Ventricular pre-excitation (part of Wolff-Parkinson-White
- 2 syndrome).
- 3 • Left or right ventricular hypertrophy.
- 4 • Abnormal T wave inversion.
- 5 • Pathological Q waves.
- 6 • Atrial arrhythmia (sustained).
- 7 • Paced rhythm.

### 8 **1.1.3 Red flags**

9 For this guideline, the term 'red flags' indicates that the person is considered  
10 to be at high risk of a serious adverse event and should be referred for urgent  
11 specialist assessment

12 1.1.3.1 If, during the initial assessment, it is found that TLoC is secondary  
13 to another condition that requires immediate treatment, instigate  
14 suitable management accordingly. Use clinical judgement to  
15 determine the urgency of treatment.

16 1.1.3.2 Treat as an emergency (within 24 hours) anyone with TLoC who  
17 also has any of the following.

- 18 • An ECG abnormality (see recommendation 1.1.2.3).
- 19 • Heart failure.
- 20 • TLoC on exertion.
- 21 • Family history of sudden cardiac death in people aged younger  
22 than 40 years and/or an inherited cardiac condition.
- 23 • Aged older than 65 years with no prodromal symptoms.
- 24 • New or unexplained breathlessness.
- 25 • A heart murmur.

26 If assessed out of hospital send the person to the Emergency  
27 Department. If assessed in the Emergency Department, admit the  
28 person to hospital and arrange a specialist cardiology assessment  
29 within 24 hours.

1 **1.1.4 Making a diagnosis after the initial assessment of TLoC**

2 **Uncomplicated faint (vasovagal syncope)**

3 1.1.4.1 Diagnose uncomplicated faint (vasovagal syncope) on the basis of  
4 the initial assessment when:

- 5 • there are no features from the initial assessment that suggest an  
6 alternative diagnosis (note that brief seizure activity can occur  
7 during uncomplicated faints and is not necessarily diagnostic of  
8 epilepsy) **and**
- 9 • there are features strongly suggestive of uncomplicated faint;  
10 that is, at least one of the following features is present ('the six  
11 Ps').
- 12 – **P**osture (prolonged standing or sitting).
  - 13 – **P**rovoking factors (such as pain, fear, emotional distress or a  
14 medical procedure).
  - 15 – **P**rodromal symptoms (such as sweating or feeling warm/hot  
16 before TLoC).
  - 17 – **P**ost-TLoC nausea or vomiting.
  - 18 – **P**ost initial recovery, recurrence of TLoC provoked by sitting  
19 or standing up.
  - 20 – **P**revious similar episodes, in which TLoC has been prevented  
21 by lying down.

22 **Situational syncope**

23 1.1.4.2 Diagnose situational syncope on the basis of the initial assessment  
24 when:

- 25 • there are no features from the initial assessment that suggest an  
26 alternative diagnosis **and**
- 27 • syncope is clearly and consistently provoked by micturition  
28 (usually in men) or by coughing.

29

1 **Orthostatic hypotension**

2 1.1.4.3 Diagnose orthostatic hypotension on the basis of the initial  
3 assessment when:

- 4 • there are no features suggesting an alternative diagnosis **and**
- 5 • the history is typical of orthostatic hypotension **and**
- 6 • either the systolic blood pressure falls by at least 20 mm Hg in  
7 the first 5 minutes after standing up from a supine position or the  
8 systolic blood pressure falls below 90 mm Hg on standing.

9 1.1.4.4 After a diagnosis of orthostatic hypotension, manage according to  
10 the condition of the patient (for example, see 'Falls: the assessment  
11 and prevention of falls in older people' [NICE clinical guideline 21]).

12 **1.1.5 Referral for further assessment**

13 **Predictive factors indicating need for referral to a specialist in epilepsy**

14 1.1.5.1 Refer people who present with one or more of the following  
15 features (that is, features that are strongly suggestive of epileptic  
16 seizures) for an assessment by a specialist in epilepsy; the person  
17 should be seen by the specialist within 4 weeks (see 'The  
18 epilepsies: the diagnosis and management of the epilepsies in  
19 adults and children in primary and secondary care [NICE clinical  
20 guideline 20]).

- 21 • A bitten tongue.
- 22 • Abnormal behaviour (one or more of: witnessed amnesia for  
23 abnormal behaviour, witnessed unresponsiveness, unusual  
24 posturing, or prolonged limb jerking [note that brief seizure  
25 activity can occur during uncomplicated faints and is not  
26 necessarily diagnostic of epilepsy]).
- 27 • Post-ictal confusion.
- 28 • Head-turning to one side during TLoC.
- 29 • Prodromal déjà vu or jamais vu.

1 Consider that the episode may not be related to epilepsy if any of  
2 the following features are present.

- 3 • Pre-syncope, especially where syncope was avoided by postural  
4 change.
- 5 • Sweating.
- 6 • Prolonged standing that appeared to precipitate TLoC.

## 7 **Referral for specialist cardiology assessment – all other people with** 8 **TLoC**

9 1.1.5.2 Refer all people with TLoC for specialist cardiology assessment,  
10 except those in whom a firm diagnosis has been reached after the  
11 initial assessment or whose presentation is strongly suggestive of  
12 epileptic seizures.

## 13 **1.2 Specialist cardiology assessment and diagnosis**

### 14 **1.2.1 Assessment and assignment to type of syncope**

15 1.2.1.1 Carry out a specialist cardiology assessment as follows.

- 16 • Reassess the person's:
  - 17 – detailed history of TLoC including any previous events
  - 18 – medical history and any family history of cardiac disease
  - 19 – drug therapy at the time of TLoC and any subsequent  
20 changes.
- 21 • Conduct a clinical examination, including full cardiovascular  
22 examination and measurement of supine and standing blood  
23 pressure.
- 24 • Repeat 12-lead ECG and examine previous ECG  
25 documentation.

26 On the basis of this assessment, assign the person to one of the  
27 following types of syncope: suspected structural heart disease,  
28 suspected cardiac arrhythmic, suspected neurally mediated, or  
29 unexplained. Offer further testing as directed by recommendations  
30 1.2.2.1 to 1.2.2.10.

1 **1.2.2 Diagnostic tests for different types of syncope**

2 1.2.2.1 For people with suspected structural heart disease, investigate  
3 appropriately.

4 1.2.2.2 For people with exercise-induced syncope, if there is no clinical  
5 evidence of structural heart disease, such as aortic stenosis or  
6 hypertrophic cardiomyopathy, offer urgent<sup>1</sup> exercise testing. Advise  
7 the person to refrain from exercise until advised otherwise following  
8 further assessment.

9 1.2.2.3 When the mechanism for exercise-induced syncope is identified by  
10 exercise testing, carry out further investigation or treatment as  
11 appropriate in each individual clinical context. If exercise testing  
12 does not clarify the cause of TLoC, carry out further investigations  
13 assuming a suspected cardiac arrhythmic cause.

14 1.2.2.4 For people with a suspected cardiac arrhythmic cause of syncope,  
15 offer an ambulatory ECG and do not offer a tilt test. The type of  
16 ambulatory ECG offered should be chosen on the basis of the  
17 person's history (and, in particular, frequency) of TLoC.

- 18
- 19 • People with very frequent TLoC (daily or every few days): offer  
20 Holter monitoring (up to 48 hours if necessary). If no further  
21 TLoC occurs during the monitoring period, offer an external  
22 event recorder that provides continuous recording with the  
23 facility for the patient to indicate when a symptomatic event has  
24 occurred.
  - 25 • People who have less frequent TLoC (every 1–2 weeks): offer  
26 an external event recorder. If the person experiences further  
27 TLoC outside the period of external event recording, offer an  
28 implantable event recorder.
  - 29 • People who have TLoC infrequently (less than every 2 weeks):  
offer an implantable event recorder. A Holter monitor should not

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<sup>1</sup> 'Urgent' is defined as 'as soon as possible and no longer than 7 days from the TLoC'.

1 usually be offered unless there is evidence of a conduction  
2 abnormality on the 12-lead ECG.

3 1.2.2.5 For people who have a clear diagnosis of neurally mediated  
4 syncope on initial assessment, do not offer a tilt test to confirm the  
5 diagnosis.

6 1.2.2.6 For people with suspected vasovagal syncope who have had  
7 recurrent episodes of TLoC that adversely affect their quality of life,  
8 or represent a high risk of injury, consider a tilt test to assess  
9 whether the syncope is accompanied by a severe cardioinhibitory  
10 response (usually asystole).

11 1.2.2.7 For people with unexplained syncope who are aged 60 years or  
12 older, and for people of any age with suspected carotid sinus  
13 syncope, offer carotid sinus massage. This test should be  
14 conducted in a controlled environment, with ECG recording, and  
15 with resuscitation equipment and a skilled team immediately  
16 available. When carotid sinus massage is being offered, it should  
17 be done before offering ambulatory ECG (see recommendation  
18 1.2.2.9).

19 1.2.2.8 Diagnose carotid sinus syncope when carotid sinus massage  
20 reproduces syncope (usually due to a predominantly  
21 cardioinhibitory response).

22 1.2.2.9 Offer ambulatory ECG and do not offer a tilt test to people:  
23 • with unexplained syncope who are younger than 60 years of age  
24 • who are aged 60 years or older if carotid sinus massage is not  
25 diagnostic.

26 The type of ambulatory ECG offered should be appropriate to the  
27 person's history of TLoC (see recommendation 1.2.2.4).

28 1.2.2.10 When offering a person an implantable event recorder, provide one  
29 that has both patient-activated and automatic detection modes.

1 Instruct the person and their family and/or carer how to operate the  
2 device. Advise the person that they should have prompt (usually  
3 the next day) follow-up (data interrogation of the device) after they  
4 have any further TLoC.

5 **1.3 Providing information for people with a suspected or**  
6 **confirmed TLoC**

7 **1.3.1 Driving**

8 1.3.1.1 When a person who has experienced TLoC first presents, give  
9 them advice on their eligibility to drive<sup>2</sup>.

10 1.3.1.2 With the exception of people in whom TLoC is diagnosed as an  
11 uncomplicated faint (vasovagal syncope) and people with a clear  
12 history of micturition syncope, advise all people who have  
13 experienced TLoC that they must not drive.

14 1.3.1.3 After a firm diagnosis of orthostatic hypotension or when they have  
15 had a specialist assessment, advise the person that they must  
16 report their TLoC to the DVLA.

17 **1.3.2 Health and safety at work**

18 1.3.2.1 Advise people who have experienced TLoC of the implications of  
19 their episode for health and safety at work and any action they  
20 must take to ensure the safety of themselves and those of other  
21 people.

22 **1.3.3 Future events**

23 1.3.3.1 Advise people who have experienced TLoC to try to record any  
24 future events (for example, a video recording [including using

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<sup>2</sup> Please refer to 'Drivers Medical Group DVLA (2009): At a glance guide to the current medical standards of fitness to drive' available from:  
[www.dft.gov.uk/dvla/~media/pdf/medical/at\\_a\\_glance.ashx](http://www.dft.gov.uk/dvla/~media/pdf/medical/at_a_glance.ashx) and  
[www.dft.gov.uk/dvla/medical/medical\\_advisory\\_information/medicaladvisory\\_meetings/pmembers\\_nervous\\_system.aspx](http://www.dft.gov.uk/dvla/medical/medical_advisory_information/medicaladvisory_meetings/pmembers_nervous_system.aspx)

1 cameras in mobile telephones] or a detailed witness account of the  
2 event).

### 3 **1.3.4 Explanation of causes of TLoC**

4 1.3.4.1 Offer people a clear explanation of the possible causes of their  
5 TLoC.

### 6 **1.3.5 People waiting for a specialist assessment**

7 1.3.5.1 Provide the following advice to people waiting for a specialist  
8 assessment.

- 9
- 10 • What they should do if they have another similar event.
  - 11 • What they should do if they have another event that is different.
  - 12 • If appropriate, how they should modify their activity (for example,  
by avoiding physical exertion).

### 13 **1.3.6 People who have a confirmed diagnosis**

14 1.3.6.1 In people diagnosed with an uncomplicated faint (vasovagal  
15 syncope), reassure them that their prognosis is good. Advise them  
16 to consult their GP if they experience further TLoC, particularly if  
17 this occurs frequently or differs from their recent episode.

18 1.3.6.2 Offer lifestyle advice to people diagnosed with an uncomplicated  
19 faint (vasovagal syncope); for example, advise them:

- 20
- 21 • of the possible trigger events, and strategies for avoiding them
  - 22 • to be vigilant for the onset of warning signs of fainting and to  
23 initiate counter measures immediately (such as lying down, if  
possible with their legs elevated)
  - 24 • to avoid standing for long periods of time
  - 25 • to initiate counter pressure manoeuvres (such as contracting calf  
26 or arm muscles or buttocks) if they are standing for long periods  
27 of time
  - 28 • to get up cautiously when they feel well again after a faint, or to  
29 seek help if they don't get better

- 1                   • to keep a record of their symptoms, when they occur and what  
2                   they were doing at the time, in order to understand what causes  
3                   them to faint.

4   1.3.6.3   Once a firm diagnosis of orthostatic hypotension has been made,  
5                   provide the person with information about their condition. This  
6                   should include:

- 7                   • treatment options available  
8                   • prognostic implications of the diagnosis  
9                   • what they should do if they experience another TLoC.

10   1.3.6.4   Offer lifestyle advice to people diagnosed with orthostatic  
11                   hypotension; for example, advise them to:

- 12                   • avoid activities, such as:  
13                   – eating heavy meals  
14                   – sudden standing after meals/eating  
15                   – taking hot baths or being subjected to excessive heat  
16                   – becoming dehydrated; instead, they should increase fluid  
17                   intake and have an adequate salt intake  
18                   – straining to open their bowels  
19                   – bending at the waist; instead, they should pick something up  
20                   from the floor by bending at the knees (squatting)  
21                   • limit or avoid alcohol  
22                   • consider sleeping with the head of the bed slightly elevated  
23                   • take care when moving from a lying or sitting position to a  
24                   standing position (for example, when getting out of bed, they  
25                   should sit on the edge of the bed for a short time before  
26                   standing)  
27                   • sit or lie down immediately after feeling lightheaded upon  
28                   standing.

29   1.3.6.5   Offer lifestyle advice to people suspected of having an epileptic  
30                   cause for their TLoC (see 'The epilepsies: the diagnosis and

1 management of the epilepsies in adults and children in primary and  
2 secondary care [NICE clinical guideline 20]); for example, advise  
3 them:

- 4 • of safety issues, such as bathing and swimming, and working at  
5 heights and with machinery
- 6 • what to do if they experience another TLoC while waiting for a  
7 specialist appointment (for example, see their GP or attend the  
8 Emergency Department)
- 9 • to keep a record of any episodes of TLoC, including any witness  
10 accounts of the event; they should take these to the appointment  
11 with the specialist or Emergency Department clinician
- 12 • of first aid for tonic-clonic seizures (offer also to the person's  
13 family and/or carers).

14 1.3.6.6 Offer lifestyle advice to people suspected of having a cardiac cause  
15 for their TLoC; for example, advise them to:

- 16 • avoid situations that could trigger TLoC (for example, if their  
17 TLoC is caused by exercise) until advised further by a specialist
- 18 • not travel by air until advised further by a specialist, or advised  
19 by a specialist that it is safe to do so
- 20 • find out if there is any history of TLoC or sudden death in any  
21 members of the family (advise them to try to go back at least two  
22 generations).

23

24

## 1    **2            Notes on the scope of the guidance**

2    NICE guidelines are developed in accordance with a scope that defines what  
3    the guideline will and will not cover. The scope of this guideline is available  
4    from [www.nice.org.uk/guidance/NICEtoadddetails](http://www.nice.org.uk/guidance/NICEtoadddetails). *[For the final guideline this*  
5    *should read "The scope of this guideline is available from*  
6    *www.nice.org.uk/CGXX – click on 'How this guidance was produced'."]*

### 7    **How this guideline was developed**

8    NICE commissioned the National Clinical Guideline Centre for Acute and  
9    Chronic Conditions to develop this guideline. The Centre established a  
10    guideline development group (see appendix A), which reviewed the evidence  
11    and developed the recommendations. An independent guideline review panel  
12    oversaw the development of the guideline (see appendix B).

13    There is more information about how NICE clinical guidelines are developed  
14    on the NICE website ([www.nice.org.uk/HowWeWork](http://www.nice.org.uk/HowWeWork)). A booklet, 'How NICE  
15    clinical guidelines are developed: an overview for stakeholders, the public and  
16    the NHS' (fourth edition, published 2009), is available from NICE publications  
17    (phone 0845 003 7783 or email [publications@nice.org.uk](mailto:publications@nice.org.uk) and quote reference  
18    N1739).

## 19    **3            Implementation**

20    NICE has developed tools to help organisations implement this guidance (see  
21    [www.nice.org.uk/guidance/CGXX](http://www.nice.org.uk/guidance/CGXX)).

22

1

## 2 **4 Research recommendations**

3 The Guideline Development Group has made the following recommendations  
4 for research, based on its review of evidence, to improve NICE guidance and  
5 patient care in the future. The Guideline Development Group's full set of  
6 research recommendations is detailed in the full guideline (see section 5).

### 7 **4.1 Development of a robust system for promoting good-** 8 **quality information from a witnessed TLoC**

#### 9 **Research question**

10 Does providing people who have experienced TLoC and their family/carers  
11 with information on the importance of witnessed accounts reduce the time to  
12 correct diagnosis and prevent inappropriate referrals?

#### 13 **Research recommendation**

14 Development of a robust system for providing good-quality information from a  
15 witnessed TLoC by patients/carers/family to improve diagnostic outcomes.

#### 16 **Why this is important**

17 Patient and witness accounts of TLoC are essential to a correct diagnosis.  
18 Information is an important part of the patient journey and central to the  
19 overall quality of each patient's experience of the NHS. Improving information  
20 for patients was a commitment in the NHS Plan (DH 2000) and more recently  
21 in Lord Darzi's review of the NHS, 'High quality care for all' (DH 2008). There  
22 is a need to improve and monitor the effectiveness of information provided  
23 across the NHS. There is a need for good-quality trials in people with TLoC to  
24 establish whether providing specific information to patients/carers helps  
25 healthcare professionals to reach a correct diagnosis more quickly and  
26 improves outcomes for the patient. The information should address which  
27 details of a TLoC are required to aid diagnosis. This would also identify those  
28 patients who have been incorrectly sent down the wrong TLoC pathway.

1 Such studies should consider a number of delivery mechanisms including  
2 advice-specific information leaflets or visual data (information given in pictorial  
3 form).

#### 4 **4.2 Investigation of the accuracy of automated ECG** 5 **interpretation**

##### 6 **Research question**

7 Does using automated ECG interpretation improve the accuracy of diagnosis  
8 in the TLoC population compared with expert interpretation, and what is the  
9 overall effect on patient outcomes, including patients with inherited long QT  
10 syndromes?

##### 11 **Research recommendation**

12 Investigation of the accuracy of automated ECG interpretation compared with  
13 expert interpretation in the diagnosis and outcomes in the TLoC population,  
14 including people with inherited long QT syndromes.

##### 15 **Why this is important**

16 The prevalence of syncope in the UK population is estimated to be  
17 approximately 25%. The Framingham study identified people with cardiac  
18 syncope to have a poorer prognosis than those with neurally mediated  
19 syncope or those in whom the cause of TLoC was uncertain. Risk-  
20 stratification studies undertaken in Emergency Departments in patients with  
21 TLoC have identified that an abnormal resting 12-lead ECG at presentation is  
22 a marker of high risk of death. A 12-lead ECG is cheap, widely available and  
23 can be performed quickly at the patient's bedside. In the past, all recorded  
24 ECGs were manually read and interpreted, the latter depending on the skill of  
25 the interpreter. Most of the ECGs recorded today are digitally acquired and  
26 automatically read. Scientific studies have been undertaken to compare the  
27 accuracy of this automatic interpretation with expert interpretation in the  
28 general population. However, no such scientific studies are available in the  
29 population with TLoC. It is therefore recommended that studies be undertaken  
30 in adults to assess the accuracy of automatically interpreted ECGs versus

1 those interpreted by an expert in diagnosing the cause of TLoC, including in  
2 people with long QT syndrome.

### 3 **4.3        *Diagnostic yield of repeated ECG and physiological*** 4 ***parameter recording***

#### 5 **Research question**

6 Does a serial assessment approach (taking repeated ECGs or repeated  
7 observations of vital signs) improve diagnosis of high-risk cardiac arrhythmias  
8 when compared with a single assessment approach in people with TLoC in  
9 any setting?

#### 10 **Research recommendation**

11 Investigation to determine whether the diagnostic yield and accuracy of high-  
12 risk cardiac arrhythmias improves with serial assessments when compared  
13 with a single assessment approach in people with TLoC in any setting.

#### 14 **Why this is important**

15 Current consensus opinion suggests that a single assessment approach has  
16 the same diagnostic yield as serial assessments for high-risk cardiac  
17 arrhythmias in patients presenting with TLoC, despite there being little  
18 evidence to support this approach during the critical phase of a presentation.  
19 Variable length QTc and changes in T-wave morphology can occur with heart  
20 rates as low as 90 beats per minute and may be paroxysmal in nature.  
21 Undertaking a serial assessment approach may therefore be more sensitive  
22 for detecting QTc length variability for high-risk patients with potential long QT  
23 syndrome during initial presentations than a single recording of an ECG.

### 24 **4.4        *Investigation of the benefit and cost effectiveness of*** 25 ***12-lead ECG***

#### 26 **Research question**

27 In people who are considered on the basis of clinical history and examination  
28 to have had an uncomplicated faint, what is the additional clinical  
29 effectiveness and cost effectiveness of a 12-lead ECG?

1 **Research recommendation**

2 Investigation of the benefit and cost effectiveness of 12-lead ECG in all people  
3 who are considered on the basis of clinical history and examination to have  
4 had an uncomplicated faint.

5 **Why this is important?**

6 Uncomplicated fainting is a very common cause of TLoC. It has a good  
7 prognosis and in most cases can be diagnosed accurately from the person's  
8 history and from observations made by witnesses or healthcare professionals,  
9 without the need for any tests. Most healthy people who faint have a normal  
10 ECG; in a few, ECG features of no importance may generate unnecessary  
11 concern and further tests.

12 Much less commonly, relatively rare heart conditions cause TLoC in otherwise  
13 healthy young people, who are at risk of dying suddenly unless the condition  
14 is recognised and treated. In many of these people, an abnormal ECG will  
15 provide evidence of the heart condition. Although TLoC in these conditions is  
16 not usually typical of an uncomplicated faint, the diagnosis has been missed in  
17 some people, with disastrous consequences.

18 It is important that research is conducted to establish whether:

- 19 • making a diagnosis of uncomplicated faint from typical clinical features and  
20 without an ECG will miss dangerous heart conditions that would have been  
21 identified if an ECG had been recorded
- 22 • it is cost effective to record ECGs in large numbers of people who have had  
23 an uncomplicated faint to try to avoid missing a more dangerous condition  
24 in a small number of people.

25 **4.5 Cost effectiveness of implantable event recorders in**  
26 ***people with TLoC***

27 **Research question**

28 Under what circumstances is the implantable cardiac event recorder the  
29 investigation of choice for TLoC in people in whom a cardiac cause is  
30 suspected?

1 **Research recommendation**

2 Investigation of the cost effectiveness of implantable cardiac event recording  
3 compared with alternative investigation strategies (for example, prior external  
4 event recording) in people with suspected cardiac cause of TLoC.

5 **Why this is important**

6 This guideline recommends that people with a suspected cardiac cause of  
7 TLoC, who have infrequent episodes (every 1–2 weeks or less), should be  
8 offered an implantable cardiac event recorder. It is unclear when it would be  
9 more cost effective to use a strategy of alternative investigation (for example,  
10 external event recording).

11

12 **5 Other versions of this guideline**

13 **5.1 Full guideline**

14 The full guideline, 'Transient loss of consciousness (TLoC) management in  
15 adults' contains details of the methods and evidence used to develop the  
16 guideline. It is published by the National Clinical Guideline Centre for Acute  
17 and Chronic Conditions, and is available from [NCC website details to be  
18 added] and our website (www.nice.org.uk/CGXX/Guidance). **[Note: these  
19 details will apply to the published full guideline.]**

20 **5.2 Quick reference guide**

21 A quick reference guide for healthcare professionals is available from  
22 www.nice.org.uk/CGXX/QuickRefGuide

23 For printed copies, phone NICE publications on 0845 003 7783 or email  
24 publications@nice.org.uk (quote reference number N1XXX). **[Note: these  
25 details will apply when the guideline is published.]**

26 **5.3 'Understanding NICE guidance'**

27 A summary for patients and carers ('Understanding NICE guidance') is  
28 available from www.nice.org.uk/CGXX/Publicinfo

1 For printed copies, phone NICE publications on 0845 003 7783 or email  
2 publications@nice.org.uk (quote reference number N1XXX). **[Note: these**  
3 **details will apply when the guideline is published.]**

4 We encourage NHS and voluntary sector organisations to use text from this  
5 booklet in their own information about transient loss of consciousness.

## 6 **6 Related NICE guidance**

### 7 **Published**

- 8 • Stroke: diagnosis and initial management of acute stroke and transient  
9 ischaemic attack (TIA). NICE clinical guideline 68 (2008). Available from  
10 [www.nice.org.uk/CG68](http://www.nice.org.uk/CG68)
- 11 • Head injury: Triage, assessment, investigation and early management of  
12 head injury in infants, children and adults. NICE clinical guideline 56  
13 (2007). Available from [www.nice.org.uk/CG56](http://www.nice.org.uk/CG56)
- 14 • Atrial fibrillation: the management of atrial fibrillation. NICE clinical guideline  
15 36 (2006). Available from [www.nice.org.uk/CG36](http://www.nice.org.uk/CG36)
- 16 • Anxiety (amended): management of anxiety (panic disorder, with or without  
17 agoraphobia, and generalised anxiety disorder) in adults in primary,  
18 secondary and community care. NICE clinical guideline 22 (2007).  
19 Available from [www.nice.org.uk/CG22](http://www.nice.org.uk/CG22)
- 20 • Falls: the assessment and prevention of falls in older people. NICE clinical  
21 guideline 21 (2004). Available from [www.nice.org.uk/CG21](http://www.nice.org.uk/CG21)
- 22 • The epilepsies: The diagnosis and management of the epilepsies in adults  
23 and children in primary and secondary care. NICE clinical guideline 20  
24 (2004). Available from [www.nice.org.uk/CG20](http://www.nice.org.uk/CG20)

### 25 **Under development**

26 NICE is developing the following guidance (details available from  
27 [www.nice.org.uk](http://www.nice.org.uk)):

- 28 • Acute coronary syndromes: the management of unstable angina and non-  
29 ST segment elevation myocardial infarction. NICE clinical guideline.  
30 Publication expected March 2010.

- 1 • The epilepsies: the diagnosis and management of the epilepsies in adults  
2 and children in primary and secondary care (update). NICE clinical  
3 guideline. Publication expected March 2010.

4

## 5 **7 Updating the guideline**

6 NICE clinical guidelines are updated so that recommendations take into  
7 account important new information. New evidence is checked 3 years after  
8 publication, and healthcare professionals and patients are asked for their  
9 views; we use this information to decide whether all or part of a guideline  
10 needs updating. If important new evidence is published at other times, we  
11 may decide to do a more rapid update of some recommendations.

12

13

1

2 **Appendix A: The Guideline Development Group and**  
3 **NICE project team**

4 ***Guideline Development Group***

5 **Dr Paul Cooper (Chairman)**

6 Consultant Neurologist, Salford Royal Hospital (Hope Hospital)

7 **Dr Robin Beal**

8 Consultant in Emergency Medicine, St Marys Hospital, Newport, Isle of Wight

9 **Ms Mary Braine**

10 Lecturer, School of Nursing & Midwifery, University of Salford

11 **Ms Julie Fear**

12 Patient and carer representative

13 **Ms Melesina Goodwin**

14 Epilepsy Specialist Nurse, Northampton General Hospital

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18 Patient and carer representative

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20 General Practitioner, Wiltshire

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23 **Dr Sanjiv Petkar**

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25 **Dr David Pitcher**

26 Consultant Cardiologist, Worcestershire Royal Hospital

1 **Ms Alison Pottle**

2 Cardiology Nurse Consultant, Harefield Hospital

3 **Dr Greg Rogers**

4 General Practitioner with a Special Interest in Epilepsy (GPwSI) for Eastern  
5 and Coastal Kent Primary Care Trust

6 **Mr Garry Swann**

7 Emergency Care Nurse Consultant, Heart of England Foundation Trust in  
8 Birmingham and Social and Clinical Lead (Urgent Care), West Midlands  
9 Strategic Health Authority

10 ***Technical Team***

11 **Dr Ian Bullock (Guideline Lead)**

12 Chief Operating Officer, NCGC

13 **Ms Sarah Davis**

14 Health Economic Lead, NCGC

15 **Mr Paul Miller**

16 Senior Information Scientist

17 **Ms Emma Nawrocki**

18 Project Co-ordinator

19 **Ms Nancy Turnbull**

20 Project Manager, NCGC

21 **Dr Maggie Westby (Reviewer)**

22 Clinical Effectiveness Lead, NCGC

23

24

1

2 ***NICE project team***

3 **Philip Alderson**

4 Associate Director

5 **Susan Latchem**

6 Guideline Commissioning Manager

7 **Laura Bruton**

8 Guidelines Coordinator

9 **[Name; style = Unnumbered bold heading]**

10 Technical Lead

11

12

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## 2 **Appendix B: The Guideline Review Panel**

3 The Guideline Review Panel is an independent panel that oversees the  
4 development of the guideline and takes responsibility for monitoring  
5 adherence to NICE guideline development processes. In particular, the panel  
6 ensures that stakeholder comments have been adequately considered and  
7 responded to. The panel includes members from the following perspectives:  
8 primary care, secondary care, lay, public health and industry.

9 **[NICE to add]**

10 **[Name; style = Unnumbered bold heading]**

11 [job title and location; style = NICE normal]

12

## 1 **Appendix C: Glossary**

2 **12-lead ECG** Recording of the heart's electrical signals obtained by attaching  
3 electrodes in 10 standard positions on the limbs and the surface of the chest.  
4 This provides a display of the electrical activity of the heart viewed from  
5 12 different directions.

6 **Arrhythmia** An abnormal heart rhythm.

7 **Asystole** Sustained absence of the heart's electrical activity.

8 **Blackout** Sudden and spontaneous transient loss of consciousness.  
9 Temporary lack of awareness followed by a return to full consciousness.

10 **Bradycardia** Slow heart rate (irrespective of rhythm), conventionally defined  
11 as less than 60 beats per minute.

12 **Brugada syndrome** An inherited ion channel disorder characterised by  
13 abnormal ST segment elevation in leads V1 to V3 on ECG. This predisposes  
14 to ventricular arrhythmia and sudden cardiac death and may present with  
15 syncope.

16 **Déjà vu** An intense sensation that what is happening for the first time has  
17 already occurred previously. This is common particularly in adolescence, but  
18 may occur immediately before an epileptic seizure.

19 **Emergency** Immediate action within 24 hours.

20 **External event recorder** A small portable recorder that is capable of  
21 monitoring and storing ECG recordings from electrodes on the skin. The  
22 device records the heart's rhythm during symptoms (including syncope) that  
23 occur intermittently. Excludes event recorders that do not perform continuous  
24 ECG monitoring (and therefore are not capable of documenting cardiac  
25 rhythm at the moment of TLoC).

26 **Faint** Episode of transient loss of consciousness due to vasovagal syncope.  
27 Fainting is a temporary loss of consciousness due to a drop in blood flow to  
28 the brain. The episode is brief and is followed by rapid and complete recovery.

1 **Holter monitor/recorder** A small portable recorder that is capable of  
2 continuous ECG recording from electrodes on the skin, usually used over a  
3 24- to 72-hour period.

4 **Implantable event recorder** Small implantable device capable of monitoring  
5 and storing ECG recordings of the heart's rhythm.

6 **Jamais vu** A feeling of lack of familiarity, that what should be familiar is  
7 happening for the first time; it is usually abnormal, it doesn't commonly occur  
8 in healthy people.

9 **Long QT syndromes** Inherited conditions characterised by prolongation of a  
10 specific portion of the ECG. This predisposes to ventricular arrhythmia and  
11 sudden cardiac death and may present with syncope.

12 **Micturition syncope** A form of neurally mediated syncope provoked by  
13 passing urine. Mostly occurs in men.

14 **Orthostatic hypotension** Condition in which a marked fall in blood pressure  
15 is provoked by a change in posture from lying to sitting, or from lying or sitting  
16 to standing. This may cause lightheadedness (dizziness), a fall, or transient  
17 loss of consciousness.

18 **Post-ictal confusion** An abnormal state that follows an attack, usually  
19 referring to a disturbed condition after an epileptic seizure.

20 **Pre-syncope** A sensation of impending fainting/loss of consciousness.

21 **Prodrome** Symptoms which precede the episode, usually considered to be  
22 more prominent than an aura, which is usually very brief.

23 **Short QT syndrome** Inherited condition characterised by a specific portion of  
24 the ECG being of abnormally short duration. This predisposes to ventricular  
25 arrhythmia and sudden cardiac death and may present with syncope.

26 **Specialist** A healthcare professional who has expert knowledge of, and skills  
27 in, a particular clinical area, especially one who is certified by a higher medical  
28 educational organisation.

1 **Tachycardia** Fast heart rate (irrespective of rhythm), conventionally defined  
2 as greater than 100 beats per minute.

3 **Tilt test** Test in which a patient is exposed to passive head-up tilt, during  
4 which they have beat-to-beat measurement of heart rate and blood pressure,  
5 to try to demonstrate whether or not they have a provokable tendency to  
6 vasovagal syncope.

7 **Transient loss of consciousness (TLoC)** Preferred term for a blackout.

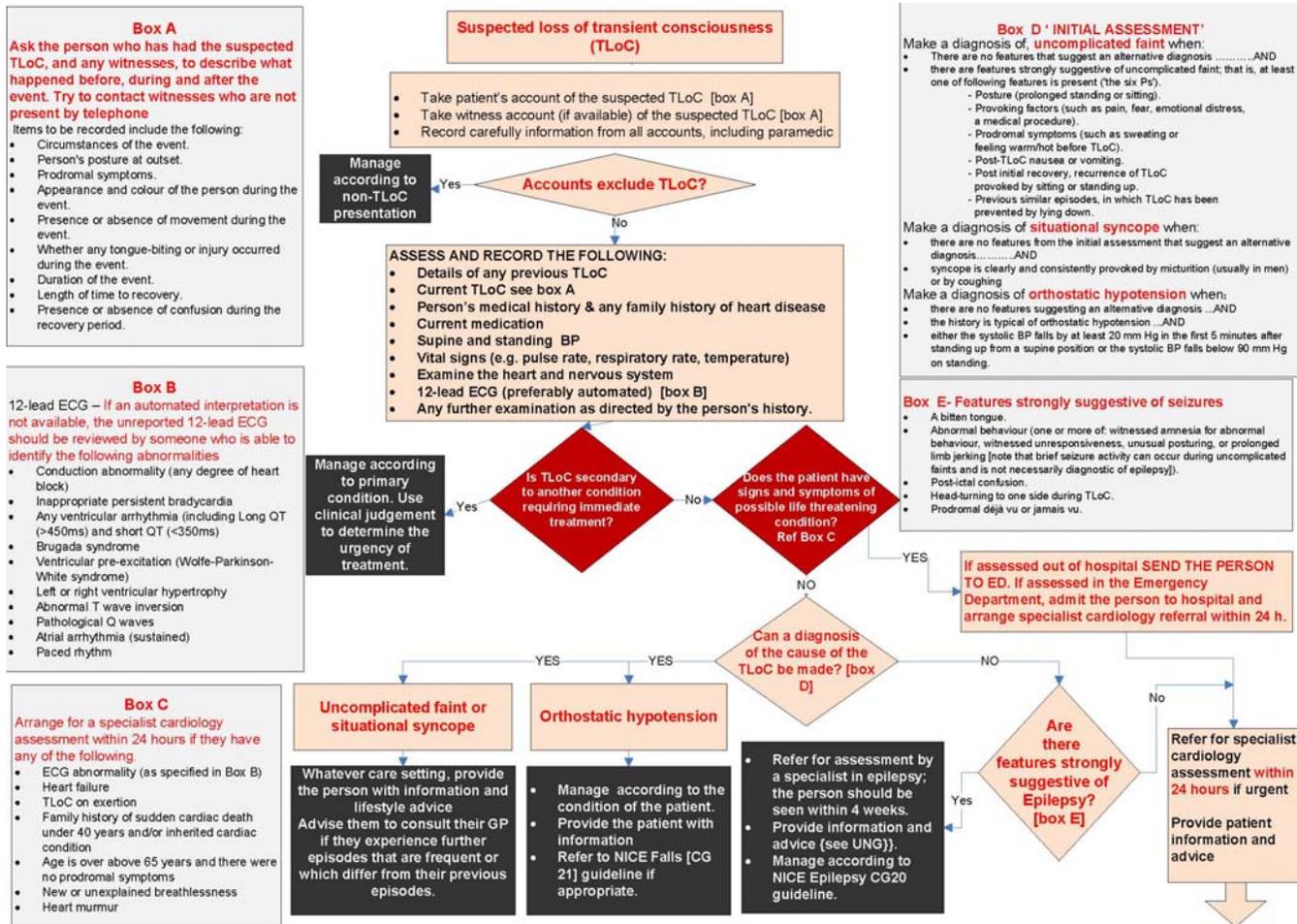
8 **Ventricular fibrillation** Chaotic electrical activity in the heart's ventricles,  
9 causing loss of pumping action and resulting cardiac arrest. If not corrected  
10 immediately this will lead to death.

11 **Ventricular tachycardia** Tachycardia arising from the heart's ventricular  
12 muscle. This can in some people cause syncope or cardiac arrest and sudden  
13 death.

14

15

1 **Appendix D: The algorithms**



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