Transient loss of consciousness (TLoC) management in adults

NICE guideline
Draft for consultation, January 2010

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

Please put line number and page number for each comment.

[For further information, see chapter 10 of 'The guidelines manual', available from the webboard]
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Introduction

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

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

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

This guideline aims to define the appropriate pathways for the initial assessment, diagnosis and specialist referral of people who have had TLoC, so that they receive the correct diagnosis quickly, efficiently and cost-effectively, leading to a suitable management plan. The approach of the Guideline Development Group was to produce a guideline in the form of an algorithm, pointing clinicians and patients towards those areas where guidance already exists (such as the NICE clinical guideline on epilepsy...
[CG20]), and providing new guidance in other areas, namely for people with syncope.

Patient-centred care

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

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

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

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

Families and carers should also be given the information and support they need.
Key priorities for implementation

Initial assessment and diagnosis

- Ask the person who has had the suspected TLoC, and any witnesses, to describe what happened before, during and after the event. Try to contact witnesses who are not present by telephone. Items to be recorded include the following.
  - Circumstances of the event.
  - Person’s posture at outset.
  - Prodromal symptoms.
  - Appearance and colour of the person during the event.
  - Presence or absence of movement during the event.
  - Whether any tongue-biting or injury occurred during the event.
  - Duration of the event.
  - Length of time to recovery.
  - Presence or absence of confusion during the recovery period. [1.1.1.1]
- Record carefully the information obtained from all accounts of the suspected TLoC. Include paramedic records with this information. Give copies of all records to the receiving clinician when care is transferred, and to the person who had the suspected TLoC. [1.1.1.2]
- Record a 12-lead ECG. When available, use a 12-lead ECG with automated interpretation. If any abnormality is identified, seek expert advice. [1.1.2.2]
- Treat as an emergency (within 24 hours) anyone with TLoC who also has any of the following.
  - An ECG abnormality (see recommendation 1.1.2.3).
  - Heart failure.
  - TLoC on exertion.
  - Family history of sudden cardiac death in people aged younger than 40 years and/or an inherited cardiac condition.
  - Aged older than 65 years with no prodromal symptoms.
  - New or unexplained breathlessness.
  - A heart murmur.
If assessed out of hospital send the person to the Emergency Department.
If assessed in the Emergency Department, admit the person to hospital and arrange a specialist cardiology assessment within 24 hours. [1.1.3.2]

- Diagnose uncomplicated faint (vasovagal syncope) on the basis of the initial assessment when:
  - there are no features from the initial assessment that suggest an alternative diagnosis (note that brief seizure activity can occur during uncomplicated faints and is not necessarily diagnostic of epilepsy) and
  - there are features strongly suggestive of uncomplicated faint; that is, at least one of the following features is present (‘the six Ps’).
     - Posture (prolonged standing or sitting).
     - Provoking factors (such as pain, fear, emotional distress or a medical procedure).
     - Prodromal symptoms (such as sweating or feeling warm/hot before TLoC).
     - Post-TLoC nausea or vomiting.
     - Post initial recovery, recurrence of TLoC provoked by sitting or standing up.
     - Previous similar episodes, in which TLoC has been prevented by lying down. [1.1.4.1]

- Refer people who present with one or more of the following features (that is, features that are strongly suggestive of epileptic seizures) for an assessment by a specialist in epilepsy; the person should be seen by the specialist within 4 weeks (see ‘The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care [NICE clinical guideline 20]).
  - A bitten tongue.
  - Abnormal behaviour (one or more of: witnessed amnesia for abnormal behaviour, witnessed unresponsiveness, unusual posturing, or prolonged limb jerking [note that brief seizure activity can occur during uncomplicated faints and is not necessarily diagnostic of epilepsy]).
  - Post-ictal confusion.
Head-turning to one side during TLoC.

Prodromal déjà vu or jamais vu.

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

- Pre-syncope, especially where syncope was avoided by postural change.
- Sweating.
- Prolonged standing that appeared to precipitate TLoC. [1.1.5.1]

Specialist cardiology assessment and diagnosis

- Carry out a specialist cardiology assessment as follows.
  - Reassess the person’s:
    - detailed history of TLoC including any previous events
    - medical history and any family history of cardiac disease
    - drug therapy at the time of TLoC and any subsequent changes.
  - Conduct a clinical examination, including full cardiovascular examination and measurement of supine and standing blood pressure.
  - Repeat 12-lead ECG and examine previous ECG documentation.

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

- For people with a suspected cardiac arrhythmic cause of syncope, offer an ambulatory ECG and do not offer a tilt test. The type of ambulatory ECG offered should be chosen on the basis of the person’s history (and, in particular, frequency) of TLoC.
  - People with very frequent TLoC (daily or every few days): offer Holter monitoring (up to 48 hours if necessary). If no further TLoC occurs during the monitoring period, offer an external event recorder that provides continuous recording with the facility for the patient to indicate when a symptomatic event has occurred.
− People who have less frequent TLoC (every 1–2 weeks): offer an external event recorder. If the person experiences further TLoC outside the period of external event recording, offer an implantable event recorder.

− People who have TLoC infrequently (less than every 2 weeks): offer an implantable event recorder. A Holter monitor should not usually be offered unless there is evidence of a conduction abnormality on the 12-lead ECG. [1.2.2.4]

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

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

The type of ambulatory ECG offered should be appropriate to the person’s history of TLoC (see recommendation 1.2.2.4). [1.2.2.9]
1 Guidance

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

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

- **Syncope** Transient loss of consciousness due to a reduction in blood supply to the brain.
- **Neurally mediated syncope** Sometimes called ‘reflex syncope’. Transient loss of consciousness due to a reflex bradycardia and/or hypotensive response to a number of causes; these include vasovagal syncope, carotid sinus syncope, and situational syncope.
- **Vasovagal syncope** A form of neurally mediated syncope due to excessive or inappropriate vagal activity. This is often, but not always, triggered by circumstances such as pain, prolonged standing (especially in a warm environment), or emotional stress. This commonly presents as an identifiable ‘uncomplicated faint’ but can present as sudden unprovoked syncope.
- **Carotid sinus syncope** A form of neurally mediated syncope in which pressure on one or other carotid artery causes syncope.
- **Situational syncope** A form of neurally mediated syncope occurring in certain situations, usually involving an increase in intra-abdominal pressure (for example, cough syncope and micturition syncope).
- **Cardiac arrhythmic syncope** Syncope caused by a sudden abnormality of heart rhythm, which may be a bradyarrhythmia (abnormal rhythm with a slow heart rate) or a tachyarrhythmia (abnormal rhythm with a fast heart rate).
- **Exercise-induced syncope** Syncope induced by exercise.
1.1 Initial assessment and diagnosis

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

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

- Circumstances of the event.
- Person’s posture at outset.
- Prodromal symptoms.
- Appearance and colour of the person during the event.
- Presence or absence of movement during the event.
- Whether any tongue-biting or injury occurred during the event.
- Duration of the event.
- Length of time to recovery.
- Presence or absence of confusion during the recovery period.

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

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

1.1.1.4 Use information gathered from all accounts of the suspected TLoC (see recommendation 1.1.1.1) to confirm whether or not TLoC has occurred. If the person definitely did not have TLoC, instigate 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]).

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

1.1.2.1 Assess and record:

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

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

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

- Conduction abnormality (any degree of heart block).
- Inappropriate persistent bradycardia.
- Any ventricular arrhythmia (including ventricular ectopic beats).
- Long QT (> 450 ms) and short QT (< 350 ms) intervals.
- Brugada syndrome.
• Ventricular pre-excitation (part of Wolff-Parkinson-White syndrome).

• Left or right ventricular hypertrophy.

• Abnormal T wave inversion.

• Pathological Q waves.

• Atrial arrhythmia (sustained).

• Paced rhythm.

1.1.3 Red flags

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

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

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

• An ECG abnormality (see recommendation 1.1.2.3).

• Heart failure.

• TLoC on exertion.

• Family history of sudden cardiac death in people aged younger than 40 years and/or an inherited cardiac condition.

• Aged older than 65 years with no prodromal symptoms.

• New or unexplained breathlessness.

• A heart murmur.

If assessed out of hospital send the person to the Emergency Department. If assessed in the Emergency Department, admit the person to hospital and arrange a specialist cardiology assessment within 24 hours.
1.1.4 Making a diagnosis after the initial assessment of TLoC

Uncomplicated faint (vasovagal syncope)

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

- there are no features from the initial assessment that suggest an alternative diagnosis (note that brief seizure activity can occur during uncomplicated fainted and is not necessarily diagnostic of epilepsy) and
- there are features strongly suggestive of uncomplicated faint; that is, at least one of the following features is present (‘the six Ps’).
  - Posture (prolonged standing or sitting).
  - Provoking factors (such as pain, fear, emotional distress or a medical procedure).
  - Prodromal symptoms (such as sweating or feeling warm/hot before TLoC).
  - Post-TLoC nausea or vomiting.
  - Post initial recovery, recurrence of TLoC provoked by sitting or standing up.
  - Previous similar episodes, in which TLoC has been prevented by lying down.

Situational syncope

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

- there are no features from the initial assessment that suggest an alternative diagnosis and
- syncope is clearly and consistently provoked by micturition (usually in men) or by coughing.
Orthostatic hypotension

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

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

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

1.1.5 Referral for further assessment

Predictive factors indicating need for referral to a specialist in epilepsy

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

- A bitten tongue.
- Abnormal behaviour (one or more of: witnessed amnesia for abnormal behaviour, witnessed unresponsiveness, unusual posturing, or prolonged limb jerking [note that brief seizure activity can occur during uncomplicated faints and is not necessarily diagnostic of epilepsy]).
- Post-ictal confusion.
- Head-turning to one side during TLoC.
- Prodromal déjà vu or jamais vu.
Consider that the episode may not be related to epilepsy if any of the following features are present.

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

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

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

**1.2 Specialist cardiology assessment and diagnosis**

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

1.2.1.1 Carry out a specialist cardiology assessment as follows.

- Reassess the person’s:
  - detailed history of TLoC including any previous events
  - medical history and any family history of cardiac disease
  - drug therapy at the time of TLoC and any subsequent changes.
- Conduct a clinical examination, including full cardiovascular examination and measurement of supine and standing blood pressure.
- Repeat 12-lead ECG and examine previous ECG documentation.

On the basis of this assessment, assign the person to one of the following types of syncope: suspected structural heart disease, suspected cardiac arrhythmic, suspected neurally mediated, or unexplained. Offer further testing as directed by recommendations 1.2.2.1 to 1.2.2.10.
1.2.2 Diagnostic tests for different types of syncope

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

1.2.2.2 For people with exercise-induced syncope, if there is no clinical evidence of structural heart disease, such as aortic stenosis or hypertrophic cardiomyopathy, offer urgent\(^1\) exercise testing. Advise the person to refrain from exercise until advised otherwise following further assessment.

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

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

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

\(^1\) ‘Urgent’ is defined as ‘as soon as possible and no longer than 7 days from the TLoC’.
1.2.2.5 For people who have a clear diagnosis of neurally mediated syncope on initial assessment, do not offer a tilt test to confirm the diagnosis.

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

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

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

1.2.2.9 Offer ambulatory ECG and do not offer a tilt test to people:

- with unexplained syncope who are younger than 60 years of age
- who are aged 60 years or older if carotid sinus massage is not diagnostic.

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

1.2.2.10 When offering a person an implantable event recorder, provide one that has both patient-activated and automatic detection modes.
Instruct the person and their family and/or carer how to operate the device. Advise the person that they should have prompt (usually the next day) follow-up (data interrogation of the device) after they have any further TLoC.

1.3 Providing information for people with a suspected or confirmed TLoC

1.3.1 Driving

1.3.1.1 When a person who has experienced TLoC first presents, give them advice on their eligibility to drive.

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

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

1.3.2 Health and safety at work

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

1.3.3 Future events

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

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

1.3.4 **Explanation of causes of TLoC**

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

1.3.5 **People waiting for a specialist assessment**

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

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

1.3.6 **People who have a confirmed diagnosis**

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

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

- of the possible trigger events, and strategies for avoiding them
- to be vigilant for the onset of warning signs of fainting and to initiate counter measures immediately (such as lying down, if possible with their legs elevated)
- to avoid standing for long periods of time
- to initiate counter pressure manoeuvres (such as contracting calf or arm muscles or buttocks) if they are standing for long periods of time
- to get up cautiously when they feel well again after a faint, or to seek help if they don’t get better
• to keep a record of their symptoms, when they occur and what they were doing at the time, in order to understand what causes them to faint.

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

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

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

• avoid activities, such as:
  – eating heavy meals
  – sudden standing after meals/eating
  – taking hot baths or being subjected to excessive heat
  – becoming dehydrated; instead, they should increase fluid intake and have an adequate salt intake
  – straining to open their bowels
  – bending at the waist; instead, they should pick something up from the floor by bending at the knees (squatting)

• limit or avoid alcohol
• consider sleeping with the head of the bed slightly elevated
• take care when moving from a lying or sitting position to a standing position (for example, when getting out of bed, they should sit on the edge of the bed for a short time before standing)
• sit or lie down immediately after feeling lightheaded upon standing.

1.3.6.5 Offer lifestyle advice to people suspected of having an epileptic cause for their TLoC (see 'The epilepsies: the diagnosis and
management of the epilepsies in adults and children in primary and secondary care [NICE clinical guideline 20]); for example, advise them:

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

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

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

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

How this guideline was developed

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

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

3 Implementation

NICE has developed tools to help organisations implement this guidance (see www.nice.org.uk/guidance/CGXX).
4 Research recommendations

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

4.1 Development of a robust system for promoting good-quality information from a witnessed TLoC

Research question

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

Research recommendation

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

Why this is important

Patient and witness accounts of TLoC are essential to a correct diagnosis. Information is an important part of the patient journey and central to the overall quality of each patient’s experience of the NHS. Improving information for patients was a commitment in the NHS Plan (DH 2000) and more recently in Lord Darzi’s review of the NHS, ‘High quality care for all’ (DH 2008). There is a need to improve and monitor the effectiveness of information provided across the NHS. There is a need for good-quality trials in people with TLoC to establish whether providing specific information to patients/carers helps healthcare professionals to reach a correct diagnosis more quickly and improves outcomes for the patient. The information should address which details of a TLoC are required to aid diagnosis. This would also identify those patients who have been incorrectly sent down the wrong TLoC pathway.
Such studies should consider a number of delivery mechanisms including advice-specific information leaflets or visual data (information given in pictorial form).

4.2 Investigation of the accuracy of automated ECG interpretation

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

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

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

4.3 Diagnostic yield of repeated ECG and physiological parameter recording

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

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

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

4.4 Investigation of the benefit and cost effectiveness of 12-lead ECG

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

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

Why this is important?

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

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

It is important that research is conducted to establish whether:

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

4.5 Cost effectiveness of implantable event recorders in people with TLoC

Research question

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

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

Why this is important

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

5 Other versions of this guideline

5.1 Full guideline

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

5.2 Quick reference guide

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

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

5.3 ‘Understanding NICE guidance’

A summary for patients and carers (‘Understanding NICE guidance’) is available from www.nice.org.uk/CGXX/Publicinfo
We encourage NHS and voluntary sector organisations to use text from this booklet in their own information about transient loss of consciousness.

6 Related NICE guidance

Published


Under development

NICE is developing the following guidance (details available from www.nice.org.uk):


7 Updating the guideline

NICE clinical guidelines are updated so that recommendations take into account important new information. New evidence is checked 3 years after publication, and healthcare professionals and patients are asked for their views; we use this information to decide whether all or part of a guideline needs updating. If important new evidence is published at other times, we may decide to do a more rapid update of some recommendations.
Appendix A: The Guideline Development Group and NICE project team

Guideline Development Group

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Appendix B: The Guideline Review Panel

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

[NICE to add]

[Name; style = Unnumbered bold heading]
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Appendix C: Glossary

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

Arrhythmia  An abnormal heart rhythm.

Asystole  Sustained absence of the heart’s electrical activity.

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

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

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

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

Emergency  Immediate action within 24 hours.

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

Faint  Episode of transient loss of consciousness due to vasovagal syncope. Fainting is a temporary loss of consciousness due to a drop in blood flow to the brain. The episode is brief and is followed by rapid and complete recovery.
Holter monitor/recorder A small portable recorder that is capable of continuous ECG recording from electrodes on the skin, usually used over a 24- to 72-hour period.

Implantable event recorder Small implantable device capable of monitoring and storing ECG recordings of the heart’s rhythm.

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

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

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

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

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

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

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

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

Specialist A healthcare professional who has expert knowledge of, and skills in, a particular clinical area, especially one who is certified by a higher medical educational organisation.
Tachycardia Fast heart rate (irrespective of rhythm), conventionally defined as greater than 100 beats per minute.

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

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

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

Ventricular tachycardia Tachycardia arising from the heart's ventricular muscle. This can in some people cause syncope or cardiac arrest and sudden death.
Appendix D: The algorithms

Box A
Ask the person who has had the suspected TLoC, and any witnesses, to describe what happened before, during and after the event. Try to contact witnesses who are not present by telephone.

Items to be recorded include the following:
- Circumstances of the event.
- Person’s position and age.
- Prodromal symptoms.
- Appearance and colour of the person during the event.
- Presence or absence of movement during the event.
- Whether any haemorrhage or injury occurred during the event.
- Duration of the event.
- Length of time to recovery.
- Presence or absence of confusion during the recovery period.

Suspected loss of transient consciousness (TLoC)

- Take patient’s account of the suspected TLoC (Box A).
- Take witness account (if available) of the suspected TLoC (Box A).
- Record carefully from all accounts, including paramedic.

Assess and record the following:
- Details of any previous TLoC.
- Personal medical history & any family history of heart disease.
- Current medication.
- Signs and symptoms.
- Vital signs (e.g. pulse rate, respiratory rate, temperature).
- Examine the heart and nervous system.
- 12-lead ECG (preferably automatic) (Box B).
- Any further examination as directed by the person’s history.

Box B
12-lead ECG – If an automated interpretation is not available, the unprocessed 12-lead ECG should be reviewed by someone who is able to identify the following abnormalities:
- Conduction abnormality (any degree of heart block).
- Inappropriate persistent bradycardia.
- Any ventricular arrhythmias (including Long QT (>400ms) and short QT (<350ms)).
- Bradycardia syndrome.
- Ventricular pre-excitation (Wolff-Parkinson-White syndrome).
- Left or right ventricular hypertrophy.
- Abnormal T wave inversion.
- Prolonged PR interval.
- Atrial arrhythmias (sustained).
- Paced rhythm.

Box C
Arrange for a specialist cardiology assessment within 24 hours if they have any of the following:
- ECG abnormality (as specified in Box B).
- Heart failure.
- TLoC in at least 3 previous episodes.
- Family history of sudden cardiac death under 65 years and/or inherited cardiac condition.
- Age is over 55 years and there were no prodromal symptoms.
- New or unexplained breathlessness.
- Heart murmur.

Uncomplicated faint or situational syncope

- Manage according to the advice on treating an uncomplicated faint or situational syncope.
- Refer to NICE Falls (CG 31) guideline if appropriate.

Orthostatic hypotension

- Manage according to the advice on treating orthostatic hypotension.
- Provide the patient with information and advice (see below).
- Refer to NICE Guidelines on orthostasis.
- Provide information and advice (see below).

Box D
INITIAL ASSESSMENT

- Make a diagnosis of uncomplicated faint when:
  - There are no features that suggest an alternative diagnosis.
  - The description is typical of fainting (headache, nausea).
- Make a diagnosis of situational syncope when:
  - There are no features that suggest an alternative diagnosis.
  - The person is usually healthy.
- Make a diagnosis of orthostatic hypotension when:
  - There are features suggesting an alternative diagnosis:
  - The history is typical of orthostatic hypotension.
  - There is a history of previous fainting.

If assessed out of hospital SEND THE PERSON TO ED. If assessed in the Emergency Department, admit the person to hospital and arrange specialist cardiology referral within 24 hours.

- Refer for specialist cardiology assessment within 24 hours if urgent.
- Provide patient information and advice.

Are there features strongly suggestive of epilepsy? (Box E)

- Yes
- No