Government of JERSEY

Health and Community Services

Transient Loss of Consciousness Clinic (T-LoC) Guideline

June 2016
Reviewed August 2017
Reviewed December 2020

DOCUMENT PROFILE

Document Registration	HCS-GD-CG-0488-03
Document Purpose	Guideline
Short Title	Transient Loss of Consciousness
Author	Sister Angela Hall
Publication Date	May 2014 (original). Revised June 2016 and August 2017.
Target Audience	Health and Social Services
Circulation List	MyStates HSS Intranet, HSSD staff
Description	Clinic for patients experiencing Transient Loss of Consciousness
Linked Policies	
Approval Route	Hospital Care Quality Group / Community Care Quality Group
Review Date	3 years from approval
Contact Details	Sister Angela Hall (tel: 442002)

CONTENTS LIST:

1. INTRODUCTION

1.1 Rationale

- Syncope: 'A transient loss of consciousness (T-LoC) due to transient global cerebral hypo-perfusion characterised by rapid onset, short duration and spontaneous complete recovery'.

- T-LoC: 'A term that encompasses all disorders characterised by spontaneous self-limited loss of consciousness (LoC), irrespective of mechanism, with complete recovery (1, 2).

  Syncope is important because it is common, costly, may be disabling and may be the only warning sign before sudden death. T-LoC is associated with considerable economic burden and accounts for approximately 1% of admissions to emergency departments, 40% of which are hospitalised (3). Median hospital stay amounts to 5.5 days. The estimated cost for syncope related management is 2.4 billion dollars in the USA and in the UK, the cost per patient is £611.00.

  NICE (2010) document 'Transient loss of consciousness ('blackouts') management in adults and young people' highlights the need for accurate, initial assessment, diagnosis and specialist referral of people who have had T-LoC (2, 3) and this is echoed in the ESC (2018) Guidance (4).

  There is a growing number of patients with blackouts, and diagnosis can be complicated. There is huge variation in the management of T-LoC with possible causes including cardiovascular disorders (ranging from cardiac arrhythmias to vasovagal syncope), epilepsy and psychogenic attacks. Up to 50% of the general population will experience a blackout – or T-LoC – at some point in their lifetime (5, 6). Falls and syncope are the biggest cause of admissions to the Emergency Department for over 75 year olds with a recent increase of 30-40% in the UK (7). Typically, patients will present to their GP or the Emergency Department with an isolated event or recurrent episodes. Depending on presentation, history taking and witness accounts, the patient might be referred to Cardiology or Neurology for onward investigations.

  Common findings in practice and from research relating to the establishment of T-LoC clinics, is misdiagnosis, delays from referral to appointment and inefficiency in management. Patients may be treated with inappropriate medications. After some time, when investigations have proved inconclusive, the patient will either be re-referred or transferred to the alternative specialty, incurring yet further delays.

  The National Service Framework (NSF) for Coronary Heart Disease (8) encouraged the creation of rapid access blackout / T-LoC clinics as part of its recommendations for service improvement. It is important that these clinics are called T-LoC or blackout clinics and not syncope to ensure patients are fully assessed and not assumed to have syncope before a full assessment made.

1.2 Scope

The policy and T-LoC clinic will apply to the islands community with referrals accepted by in-hospital teams, the Emergency Department and Primary Care.

Patients presenting with unexplained blackouts may be referred. At the time of referral, an eye witness form should be given to the patient from the referring department (Appendix 1) and this should be brought to the initial assessment.

The T-LoC clinic will serve as a triage service and appointments held by the Arrhythmia / Cardiac Nurse Specialist (and Epilepsy Nurse, if appointed). Accurate history will be taken and using the Blackout Pathway (Appendix 2), appropriate investigations and onward referral arranged. This may be to Cardiology, Neurology or back to the GP. Criteria are explained further in Appendix 3.

There are multiple causes of T-LoC and these are generally grouped into cardiac (which may be caused by structural heart disease) and non-cardiac. Non-cardiac causes involve a range of systems, including:

- Non-cardiac syncope
  - vasovagal syncope (the common faint, a reflex cause)
  - orthostatic hypotension (a postural cause)
  - cough syncope (a situational reflex cause)
- Neurological conditions such as epilepsy
- Psychological factors such as anxiety
- Unexplained causes of T-LoC

Other causes include:

- Falls
- Epilepsy
- Cardiac syncope
- Psychogenic syncope
- Metabolic disorders
- Catoplexy
- Drop attacks
- Reflex syncope
- Intoxication

Causes of syncope are explained in more detail in Appendix 4.

Syncope is more common than epilepsy which occurs in just 0.5-1% of the general population (9) but is often misdiagnosed (10). Epilepsy occurs from a sudden burst of excess electrical activity in the brain. The severity of the seizure can range from brief ‘absent moments’ where a loss of awareness or change in behaviour or emotions can occur, to partial or total body loss of consciousness and convulsions (11). T-LoC is most likely to occur during a generalised seizure where the abnormal electrical activity affects all or most of the brain (11).

During severe syncope, twitching and jerking and sudden collapse may occur. Syncope is usually due to a drop in blood pressure and / or change in heart rhythm causing a drop in cardiac output and ultimately the amount of oxygenated blood reaching the brain (2, 12). Vasovagal syncope – or the common faint – is a reflex

mechanism activated in response to a trigger e.g. the sight of blood or standing still in heat for a prolonged period (2, 3, 4). This poses little health risks long term but could cause problems if a faint was to occur whilst driving.

Types and prevalence of syncope have been categorised as follows:

▪ Reflex (or neurally mediated syncope e.g. vasovagal syncope), a benign condition caused by an inbuilt reflex in response to external triggers, accounts for approximately 66%
▪ Cardiac causes (arrhythmias and structural), approximately 16%
▪ Orthostatic hypotension can be due to medications or disease of the autonomic nervous system (e.g. Parkinsons / Diabetes), approximately 10%
▪ Other rare presentations, approximately 6%
▪ 2% of patients followed in this study remained unexplained (2).

Teesside T-LoC Service reported recent findings, similar to those above:

▪ Reflex / vasovagal 38%
▪ Orthostatic 19%
▪ Epilepsy / psychogenic 15%
▪ Heart block requiring pacing 3%
▪ Atrial fibrillation 4%
▪ Others still under investigation 21%

The clinic will be Nurse-led with senior input from the Cardiology and Neurology medical teams.

1.3 Principles

The fundamental principles for the introduction of this service include:

- Redesigning and streamlining the pathway for patients experiencing T-LoC
- One point of access to multispecialty service
- Reduction in waiting times
- Reduction in bed days and admissions
- Reducing the amount of cross specialty referral
- Improving long term outcome in survival and recurrence of syncope
- Reducing hospital related costs
- Clarity around driving restrictions and risks

2. GUIDELINE AND SERVICE PURPOSE

The economic burden and admissions to Emergency Departments with subsequent hospitalisation is high. Establishing a T-LoC / blackout clinic is relatively inexpensive as many team members are already engaged in parallel activities and this service will streamline patient referral and management. UK figures estimate a tilt table test at £3000 per diagnosis (13) and an implantable loop recorder, including implantation and follow up at £2000 (5). In most cases these clinics would result in substantial cost savings for the health service (14) by requesting only necessary investigations following consultation and discussion with specialists. Similar outcomes were demonstrated in the EaSyAS study which investigated admission rates and financial savings with syncope and implantation of loop recorders. Speed to diagnosis was increased with a reduction in unnecessary tests, hospital stay and follow up (15).

Teesside T-LoC Service recently reported their findings from 18 months in 2010, which demonstrated an average reduction of admission rates by 19.5 admissions per month and an approximate saving of £140,000 per annum.

In the absence of a gold standard clinical test to aid diagnosis, the T-LoC clinic through use of specific management pathways, is invaluable in achieving efficient and structured assessments with appropriate investigations according to patient presentation.

UK research shows that approximately 150,000 people (approximately 30% of adults and 39% of children) diagnosed with epilepsy do not actually have the condition (15).

A substantial proportion of people initially diagnosed with and treated for epilepsy have a cardiovascular cause for their T-LoC. Some have inappropriate and expensive tests or inappropriate specialist referral; others with potentially dangerous conditions may not receive appropriate assessment, diagnosis and treatment. The All Party Parliamentary Group of Epilepsy (2007) reported that the annual cost of epilepsy misdiagnosis in England is £189 million a year (16). This accounts for unnecessary treatment, economic costs including lost work and payment of disability living allowance.

There are approximately 100,000 sudden cardiac deaths every year in the UK. The majority occurring in people <30 years of age are due to inherited cardiomyopathies or arrhythmias (8). As part of the NSF for CHD guidelines, is the recommended screening of patients who may be at risk of suffering an arrhythmia to ensure problems are detected and efforts taken to reduce their risk (DH, 2005). People experiencing T-LoC may come under the care of a range of clinicians and the lack of a clear pathway may contribute to misdiagnosis and inappropriate treatments (17).

The aim of the T-LoC clinic is rapid access to the full range of neurological and cardiology diagnostic procedures, with shared leadership. This provides the optimal setting in which to make the correct assessment and ensure appropriate specialist management for individual patients (5).

2.1 Clinic

This will be based in out-patients and a weekly morning clinic slot will be available to accommodate patients as necessary. Thirty minute appointments will include:

- Patient history
- Medication history
- Feedback from eye witness account
- ECG
- Physical assessment (systems review, lying and standing blood pressure, oxygen saturations, manual pulse and auscultation for heart murmurs. Further clinical examination if qualified to do so e.g. basic neurological and cardiovascular assessment).

There may be times where more urgent assessment is required and as far as is feasibly possible, this will be arranged (i.e. when staff are available including senior medical input for onward discussion). When this is not possible e.g. out of hours / staff absence or other commitments, they will be advised to re-attend the Emergency Department accordingly and an appointment with the T-LoC clinic made as soon as possible.

More urgent referrals to the T-LoC clinic may include:

T-LoC accompanied by
- ECG abnormality
- Exercise / during exertion
- Sudden cardiac death < 40 years of age in the family
- New / unexplained dyspnoea
- Inherited cardiac condition
- Heart failure
- Heart murmur
- >65 years without prodromal features

If there are clear signs of altered neurology or where there are strong features of epilepsy for example, or where there is evidence of a clear cardiac cause requiring specialist input, not all cases of T-LoC need referring to the T-LoC clinic. Referring on to the relevant team in the usual way is sufficient. Where there is any uncertainty, this can be discussed with the Arrhythmia / Cardiac Nurse Specialist and onward management organised appropriately.

After initial consultation the patient will be provisionally selected for either Cardiology or Neurology review or referred back to their GP. The Blackout Pathway will be used to guide this selection.

Following each clinic the patients will be discussed with the corresponding clinical team. Onward referral and relevant investigations will then be requested depending on the outcome of the above. Patients who require prompt evaluation by the specialist team will be seen more urgently (e.g. complete heart block / red flags, Appendix 2 and 3).

The investigations will have been carried out within the waiting time for their follow on appointment (as far as is reasonably possible), through close links with the

relevant departments (Radiology / Clinical Investigations) and results accessible for the specialist at their clinic appointment.

Equipment and procedures available to offer a complete service include:

12 lead ECG	
24 hour ambulatory ECG monitoring	
Blood pressure monitoring	
24 hour blood pressure monitoring	
Implantable loop recorder	
Echocardiography	
Exercise stress testing	
CT / MRI	(Tertiary referral for Cardiac MRI)
Electrophysiology testing	(Tertiary referral)
EEG	
Ambulatory EEG monitoring	(Tertiary referral)
Tilt table testing	

2.2 Clinical Assessment

Priorities for implementation according to NICE (17, 18), are related to the initial assessment. Cues for history taking are identified in Appendix 4. These include accurate descriptions from the patient and ideally, witnesses. Symptoms and behaviour prior to, during and after the event help direct onward investigations and treatments.

A 12 lead ECG is essential. Red flags are detailed in Appendix 2 and 3. Onward referral should follow the suggested pathway on the syncope clinic proforma (Appendix 6).

To guide onward referral the initial assessment should incorporate the following, which may aid in distinguishing between syncope or epilepsy.

	Syncope		**Epilepsy**
Medical history	**Suggesting neurally-mediated syncope**	**Suggesting cardiac syncope (arrhythmias/structural disease)**	
	▪ After unpleasant sight / smell / pain	▪ Presence of severe structural heart disease	▪ Cut tongue
	▪ Prolonged standing, in heat	▪ During exertion or supine	▪ Post-ictal confusion
	▪ Nausea / vomiting Afterwards	▪ Preceded by palpitation	▪ Limbs jerking
	▪ With head rotation	▪ Accompanied by chest pain	▪ Déjà vu before spell
	▪ No cardiac disease	▪ Family history of sudden cardiac death (SCD)	▪ Head turning during spell
			▪ Headache
			▪ Muscle aches
			▪ History of brain injury
			▪ Family history of epilepsy
	Cardiac Syncope		
Examination and ECG	▪ Irregular rhythm ▪ Murmur ▪ Abnormal ECG		
	Postural Orthostatic Tachycardia (POTS) Orthostatic Hypotension		

Heart rate change (supine to upright)	▪ Heart rate increased by ~30bpm from lying / sitting to standing or heart rate remains elevated at ≥ 120bpm for 12 minutes after standing	
BP change (supine to upright)	▪ Drop by ≥20mmHg or <90mmHg systolic (but consider baseline BP as this may not always be significant)	

2.3 Investigations

Depending on the outcome from the initial assessment, investigations should be requested and results available by the time their follow up appointment is due.

For features suggestive of a cardiac cause, consider the appropriate use of:

- ▪ Repeat 12 lead ECG (all potential cardiac cause)
- ▪ Ambulatory ECG monitor * (arrhythmia cardiac cause or unexplained syncope)
- ▪ Echocardiogram (all potential cardiac cause)
- ▪ 24 hour BP monitor (orthostatic cause)
- ▪ CT scan (cardiac / pulmonary / Angio) (structural cardiac cause)
- ▪ Cardiac MRI (structural cardiac cause)

- ▪ Tilt table test (vasovagal / neurocardiogenic)

* if T-LoC is occurring several times a week, offer up to 48 hour monitoring. If no further T-LoC occurs during the monitoring period, offer a continuous recording external heart monitor with the added feature of self-activation for recording events (R-test / event recorder).

* if T-LoC is occurring every 1-2 weeks offer an external event recorder. If events occur outside of this time, offer an implantable loop recorder.

* if T-LoC is occurring infrequently (less than every 2 weeks), offer an implantable loop recorder.

For features suggestive of a neurological cause, consider the following:

- ▪ EEG (should only be performed to support a diagnosis of epilepsy when clinical history suggests the seizure is likely to be epileptic in origin)
- ▪ CT scan
- ▪ MRI scan (more likely if epilepsy suspected)

NICE Clinical Guideline 137 explores the epilepsies in more detail in relation to investigations and management if epilepsy is suspected (18).

3. CORPORATE PROCEDURE

To achieve an effective new service, close working relationships between departments will be essential. The timetable of consultations is set out in the table below.

In particular this will include the cardiac medical and nursing team, Clinical Investigation Department, the Neurological medical and nursing team and Radiology. ED staff and in patient wards will be informed about the service, referral and access as will colleagues in primary care.

Meetings will be held between the relevant specialities and departments to ensure clear lines of communication and familiarity with the service.

Links will be given to the heads of departments in relation to the local policy, links to national guidance and flowcharts (in the appendix section).

4. DEVELOPMENT AND CONSULTATION PROCESS

4.1 Consultation Schedule

Name and Title of Individual	Date Consulted
Dr Andrew Mitchell, Consultant Cardiologist	28.4.14, 18.8.14, 21.6.16
Dr Ranji Thomas, Associate Specialist	30.4.14, 29.6.16
Dr Howard Gibson, Consultant Neurologist	1.8.14, 29.6.16
Dr Jessica Vaz, Associate Specialist	18.8.14, 29.6.16
Andrew Norman, Clinical Investigations Manager	30.4.14, 29.6.16
Dr Chris Hare, Consultant Radiologist	5.14, 29.6.16
Jackie Tardivel, Head of Ambulatory Care	30.4.14, 29.6.16
Dr Simon Chapman, Clinical Lead, ED	29.6.16
Dr Kirstie Ross, Associate Specialist, ED	29.6.16
Dr Petra Schinle, Consultant, Medicine	29.6.16

Review 2020

Name and Title of Individual	Date Consulted
Dr Andrew Mitchell, Consultant Cardiologist	7.12.20
Kellyanne Kinsella, Arrhythmia Nurse	7.12.20

5. REFERENCE DOCUMENTS

(1) Westby M et al. (2010). Transient loss of consciousness – initial assessment, diagnosis and specialist referral: summary of NICE guidance. *British Medical Journal*, 341.

(2) National Institute for Health and Clinical Excellence. (2014). Transient loss of consciousness (‘blackouts’) in over 16’s (CG109). Available at: https://www.nice.org.uk/guidance/cg109

(3) Brignole M et al. (2006). Guidelines on management of syncope: prospective guideline-based evaluation of patients referred urgently to general hospitals. *European Heart Journal*, 27, 76-82.

(4) Birgnole M, Moya A, de Lange F, Deharo JC, Elliott P, Fanciulli A, … van Dijk. (2018). 2018 ESC Guidelines for the diagnosis and management of syncope. *European Heart Journal, 39*, 1883-1948.

(5) Fitzpatrick A & Cooper P. (2006). Diagnosis and management of patients with blackouts. *Heart*, 92, 559-568.

(6) Petkar S et al. (2005). Management of blackouts and misdiagnosis of epilepsy of epilepsy and falls. *Clinical Medicine*, *5*(5), 514-520.

(7) Kenny R, Bhangu R & King-Kallimanis B. (2012). Epidemiology of syncope / collapse in Younger and Older Western Patient Populations. *Progress in Cardiovascular Diseases*, 55(4), 357-363.

(8) Department of Health. (2005). National Service Framework for Coronary Heart Disease – Chapter 8: Arrhythmias and Sudden Cardiac Death. London: DH.

(9) Department of Health. (2000). *Services for Patients with Epilepsy: Report of a CSAG Committee Chaired by Professor Alison Kitson*. London: DH.

(10) Zaidi A et al. (2000). Misdiagnosis of epilepsy: many seizure-like attacks have a cardiovascular cause. *Journal of the American College of Cardiology*. 36, 181-184.

(11) Epilepsy Action. (2008). *Seizures*. Available at tinyurl.com/seizurespage.

(12) Shaffer C et al. (2001). Characteristics, perceived stressors and coping strategies of patients who experience neurally mediated syncope. *Heart and Lung: The Journal of Acute and Critical Care*, 30, 244-249.

(13) Krahn A et al. (2003). Cost implications of testing strategy in patients with syncope. Randomised assessment of syncope trial. *Journal of the American College of Cardiology*, 42(3), 495-501.

(14) Meyer A (2009). Transient loss of consciousness 1. Causes and impact of misdiagnosis. *Nursing Times*, 105(8), 16-18.

(15) Farwell D, Freemantle N & Sulke A. (2004) Use of implantable loop recorders in the diagnosis and management of syncope. *European Heart Journal,* 25(14), 1257-1263.

(16) Uldall P et al. (2006) The misdiagnosis or epilepsy in children admitted to a tertiary epilepsy centre with paroxysmal events. *Archives of Disease in Childhood*, 91, 219-221.

(17) National Institute for Health and Clinical Excellence. (2012). *The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care*. (CG137). Available at: https://www.nice.org.uk/guidance/cg137

(18) The All Party Parliamentary Group on Epilepsy. (2007). The Human and Economic Cost of Epilepsy in England: Wasted Money, Wasted Lives. London: APGG on Epilepsy. Available at tinyurl.com/allpartyepilepsyreport.

Useful internet links

http://www.nice.org.uk/nicemedia/live/13111/50452/50452.pdf

http://www.nice.org.uk/nicemedia/live/13111/50456/50456.pdf

http://www.arrhythmiaalliance.org.uk

http://www.heartrhythmcharity.org.uk/www/media/files/STARS_Blackout_Checklist_10_09_10.pdf

http://www.dh.gov.uk/assetRoot/04/10/60/40/04106040.pdf

Syncope Trust and Reflex anoxic Seizures (STARS – www.stars.org.uk)

7. GLOSSARY OF TERMS / KEYWORDS AND PHRASES

12 lead ECG Recording of the hearts electrical signals obtained by attaching electrodes in ten standard positions to display electrical activity of the heart, viewed from 12 different directions

Ambulatory monitor A heart monitor that records electrical activity whilst doing normal activities

Arrhythmia An abnormal heart rhythm

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

Cardiac arrhythmic syncope Syncope caused by a sudden abnormality of heart rhythm which may be bradyarrhythmia or tachyarrhythmia

Carotid sinus syncope A form of neurally mediated syncope in which pressure on one or other carotid artery causes syncope

Cataplexy A sudden and transient episode of muscle weakness accompanied by full conscious awareness, typically triggered by emotions such as laughing, crying, terror

Cough syncope Are sudden spontaneous falls while standing or walking, followed by a very swift recovery, within seconds or minutes

Drop attacks Drop attacks are sudden spontaneous falls while standing or walking, followed by a swift recovery, within seconds or minutes. This phenomena is usually caused by a temporary drop in blood supply to the anterior lobe of the cerebellum and is similar to a 'faint' episode without loss of consciousness

Echocardiograph A scan that uses standard two-dimensional, three-dimensional, and doppler ultrasound to create images of the heart

Loop Recorder An implantable device capable of monitoring and storing ECG recordings of the hearts rhythm

Micturition syncope A form of neurally mediated syncope provoked by straining while passing urine while standing

Neurally mediated syncope Sometimes called ‘reflex syncope’. Transient loss of consciousness due to a reflex hypotensive response and / or reflex bradycardia response to a number of causes (includes vasovagal syncope, carotid sinus syncope and situational syncope)

Orthostatic syncope 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 light headedness (dizziness), a fall or T-LOC

Post-ictal An altered state of consciousness after an epileptic seizure

Psychogenic A psychogenic effect is one that originates from the mind instead of another physical organ, i.e. the effect is psychological rather than physiological

Reflex syncope Reflex (neurally mediated) syncope is a transient loss of consciousness due to a reflex response that encompasses vasodilatation and/or bradycardia (rarely tachycardia), leading to systemic hypotension and cerebral hypoperfusion

Stress test Cardiac stress test is a test used in medicine and cardiology to measure the hearts ability to respond to external stress in a controlled clinical environment

Vasovagal (also called neurocardiogenic syncope) is a malaise mediated by the vagus nerve. When it leads to syncope or ‘fainting’ it is called a vasovagal syncope, which is the most common type of fainting

8. IMPLEMENTATION PLAN

Action	Responsible Officer	Timeframe
Meeting with Dr Mitchell	A Moss	End April 2014
Meeting with Dr Mitchell and Dr Gibson	A Moss and Dr Mitchell	Mid May 2014 August 2014
Meeting with Dr Hare, Radiologist	A Moss and Dr Mitchell	Mid May 2014
Action relevant changes	A Moss	End May 2014
Meet with Andrew Norman	A Moss	End May 2014
Discuss with Cardiology and Neurology team	A Moss	End May 2014
Update with Jackie Tardivel	A Moss	End May 2014
Meet with ED Clinical Lead and encourage to disseminate to fellow ED staff	A Moss	End May 2014
Pathways and education to medical teams / Audit Day	A Mitchell	June 2014
Ann Kelly for checking and publications following governance approval	A Moss	End June 2014

Review (2016)

Re-distribute to Cardiology, Neurology, ED clinical leads, Radiology lead, Clinical Investigations Manager and Jackie Tardivel	A Hall (Moss)	End June 2016
Update with feedback	A Hall (Moss)	Mid July 2016
Governance approval Cardiology / Neurology	A Hall (Moss)	Next governance meetings
Send to hssnet for checking and uploading	A Hall (Moss)	End July 2016

Review (2020)

Re-distribute to Dr Mitchell and Kellyanne Kinsella	A Hall	Dec 2020

9. APPENDICES

Appendix 1 Eye Witness Account

Eye Witness Account of a Disturbance of Consciousness

You have been given this questionnaire because you witnessed an episode of collapse. This will be of great help to make a diagnosis of the cause of collapse. Please could you answer the following questions? This form will need to be returned to the person who suffered the collapse who should bring it with them to their first appointment.

Many thanks for your help.

Details of person suffering attack Surname First name DoB		Date of attack Time (approx)		Date questionnaire completed
If we have further questions to clarify your answers, and you are happy to be contacted by telephone, please give us your details. Name: Contact number				
Immediately before the attack				
What was the patient doing? (sitting, standing, lying down, eating, sleeping etc				
Was there any exertion of change of posture (running, lifting, when standing up or bending down etc)				
Was there any emotional upset? (startled, angry, frightened or calm)				
At the onset of the attack				
Give details, as seen personally, of how it started , was it sudden or gradual? Did he/she fall, injure him/herself, cry out? Was one part of the body involved before the rest? (left or right side?)				
Did this <u>onset</u> last long?		_____ seconds/minutes (please circle one)		

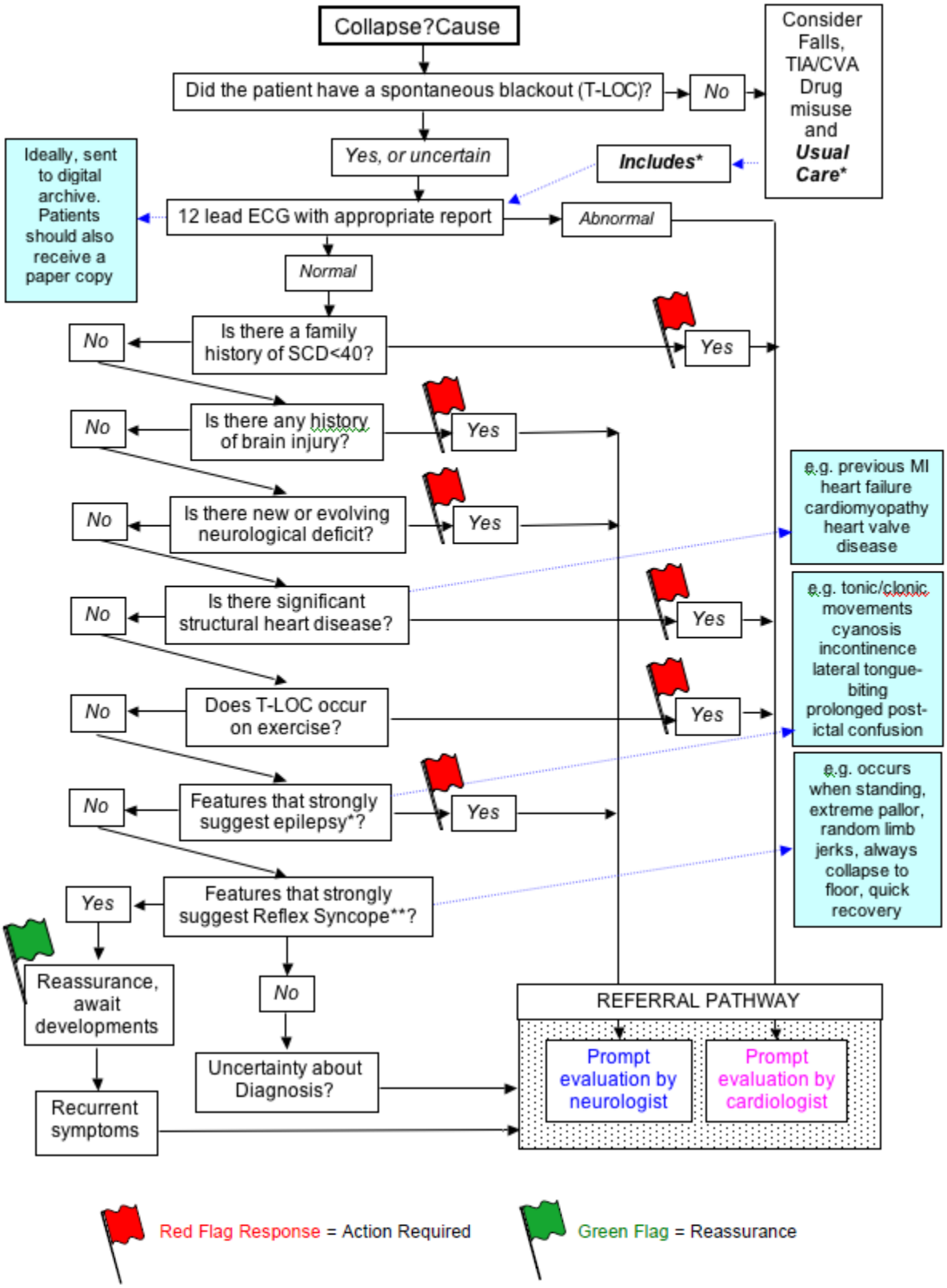
The Blackout Checklist can also be very helpful and can be downloaded from the following website

http://www.stars.org.uk/files/file/downlaodable-publications/STARS%20Blackout%20Checklist_10_09_10.pdf

Appendix 2

MANAGING PATIENTS WITH BLACKOUTS

Thorough clinical evaluation in a Rapid Access Blackouts Triage Clinic
All Patients Must Have an ECG



Appendix 3

Criteria for onward referral

Red Flags – Action Required

Red Flags requiring prompt evaluation by **Cardiology team**

- Family history of sudden cardiac death <40 years of age
- Significant structural heart disease
- T-LoC occurring on exercise
- ECG abnormality
  (e.g. complete right or left bundle branch block, heart block, long QT interval – corrected QT >450ms or short QT interval – corrected QT <350ms, acute ST segment or T wave changes, Brugada Syndrome, paced rhythm, paroxysmal or sustained atrial arrhythmia, atrial or ventricular ectopic beats, inappropriate persistent bradycardia, ST segment or T wave abnormalities – non-acute, pre-excitation (e.g. Wolff-Parkinson-White Syndrome), pathological Q waves, left or right ventricular hypertrophy.

Non urgent referral to Cardiology team

- Abnormal 12 lead ECG (not listed above)

Note: assessment will be made at the time of reviewing the patient as to the urgency for onward referral. As part of the cardiology team, senior medical colleagues are always available to discuss patient management and therefore allocate to urgent or non-urgent follow up.

Red Flags requiring prompt evaluation by **Neurology team**

- History of brain injury
- New or evolving neurological deficit (also consider metastatic brain disease)
- Features strongly suggesting epilepsy

Any uncertainty about diagnosis or if inconclusive after history taking, or recurrent symptoms, care with be discussed with specialist teams and appropriate onward referral made as suggested.

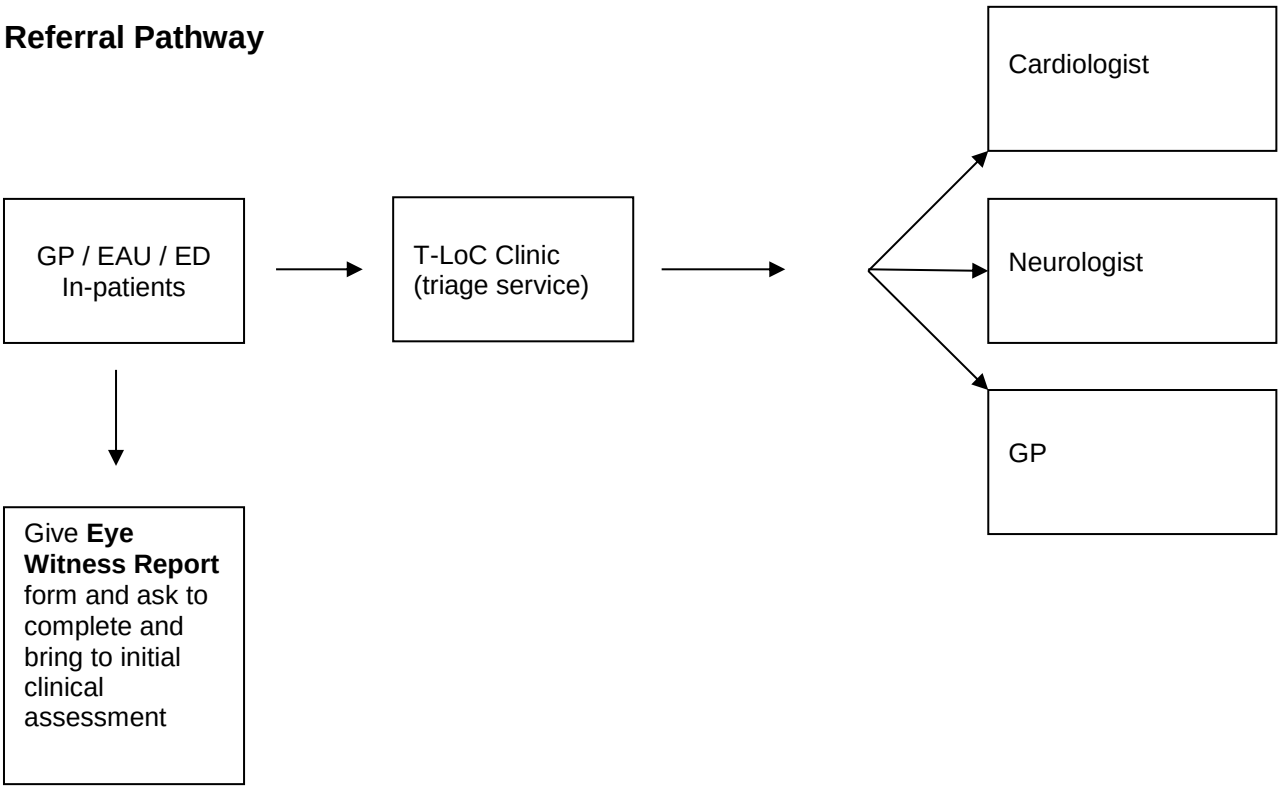
Appendix 4

Causes of Syncope

Neurally – mediated *Triggering of a reflex response giving rise to vasodilation and bradycardia*
▪ Vasovagal ▪ Carotid sinus syndrome / hypersensitivity ▪ Situational syncope – cough, sneezing, micturition, post-micturition, post-prandial, post-Exercise
Orthostatic *Inability of the autonomic nervous system to maintain blood pressure*
▪ Drug therapy (commonly diuretics, vasodilators) ▪ Abnormality with Autonomic Nervous System Primary causes – e.g. Parkinsons, POTS (postural orthostatic tachycardia syndrome) Secondary causes – e.g. Amyloid, Diabetes
Cardiac – Arrhythmias *Causing reduced cardiac output*
▪ Bradycardia – sinus node dysfunction / AV block ▪ Tachycardiac – SVT / VT ▪ Inherited causes – long QT, short QT, Brugada Syndrome
Cardiac – Structural *Impaired ability of the heart to increase cardiac output to meet circulatory demands*
▪ Acute myocardial infarction ▪ Aortic stenosis ▪ Hypertrophic Cardiomyopathy ▪ Pericardial disease / tamponade
Neurological *Seizure disorder causing abnormal and excessive discharge of cerebral neurones*
▪ Epilepsy
Metabolic
▪ Hypoglycaemia ▪ Hypoxia ▪ Hyperventilation *(arterial hypocapnia causes local cerebral vasonconstriction*) ▪ Hyponatraemia (*as volume depletion)*
Psychogenic
▪ Psychogenic pseudo-syncope

Appendix 5

Referral Pathway



Appendix 6

Patient name URN DOB

Transient Loss of Consciousness Clinic

Assessment (refer to red flags / T-LoC pathway)

Date referred	Date seen

Assessment by (print and sign)

History of presenting complaint

Circumstances prior to attack

Onset of attack and during attack

Presentation after attack

Family history

Medical history

Social history / Lifestyle	
Smoker	Caffeine
Alcohol	Diet
Occupation	Exercise

Medications

Drug	Dose	Frequency
……		
……		
……		
……		
……		
……		
……		

Allergies : Reaction :

Clinical Assessment

Height:	Weight:	BMI:
BP Lying: / mmHg	BP Standing: / mmHg	Pulse: bpm
JVP: Raised □	Normal □	Not Seen □
Heart Auscultation:	Pulses: Radial □ Brachial □ Popliteal □ Carotid □	
Chest Auscultation:	Oedema: Ankles □ Sacrum □ Abdomen □ General □	
Other Findings:		

Systems Review

12 Lead ECG:	Echocardiogram:	NYHA Heart Failure Classification:
Date:	Date:	Date:
Comments:	Normal Valves: Y N Comments:	Classification: I □ II □ II □ IV □
	LV Function/Dysfunction: Normal □ Moderate □ Severe □ EF (%):	Comments:

Systems Review

Neurological
ENT
Respiratory
GI
Musculoskeletal

Investigations requested

□ Blood tests (state which) □ Echocardiogram

□ ECG (should be performed in clinic so request if repeat needed)

□ Ambulatory monitor □ 24 hour □ 48 hour □ R-test □ Event

□ Loop recorder □ Treadmill

□ Tilt table □ CT scan

□ EEG □ MRI

Abnormal results

Provisional diagnosis (*consider arrhythmia, structural, neurological, orthostatic, psychogenic)*

Referred to		
□ GP	□ Cardiologist	□ Neurologist

Notes

For Audit

Follow up with

Date of follow up

Outcomes

Appendix 7

Cues to Clinical Assessment

Initial Assessment ▪ Describe what happened before, during and after the event Circumstances of the event Persons posture immediately before loss of consciousness Prodromal symptoms (sweating, feeling hot) Appearance (eyes open / shut, colour of the person during the event) Presence or absence of movement during the event (limb jerking and duration) Tongue biting (side of tip of tongue) Injury occurring during the event (site and severity) Duration of the event (onset to regaining consciousness) Presence or absence of confusion during the recovery period) Weakness down one side during the recovery period
▪ Record the information obtained from all accounts of the T-LoC (paramedic records, ED reports, previous correspondence)
▪ Provide copies of the ECG (s) recorded to the patient as well as copies in all notes
▪ Refer urgently for specialist cardiovascular assessment anyone with T-LoC who also has any of the following: An ECG abnormality (see red flags) Heart failure (history or physical signs) T-LoC during exertion Family history of sudden cardiac death in people aged younger than 40 years and / or an inherited cardiac condition New or unexplained breathlessness A heart murmur ▪ Consider referring for cardiovascular assessment, as above, anyone older than 65 years who has experienced T-LoC without prodromal symptoms
▪ Diagnose uncomplicated faint (uncomplicated vasovagal syncope) on the basis of the initial assessment when: There are no features suggestive of an alternative diagnosis (note that brief seizure activity can occur during uncomplicated faints and is not necessarily diagnostic of epilepsy) and there are features suggesting uncomplicated faints :

Consider the three **P**'s – **P**osture (prolonged standing or similar episodes that have been prevented by lying down)
Provoking factors (pain or a medical procedure)
Prodromal symptoms (sweating or feeling hot before T-LoC)

Onward Assessment and Referral

▪ Refer people with one or more of the following, for assessment by **Neurology**

A bitten tongue
Head turning to one side during T-LoC
No memory of abnormal behaviour that was witnessed before, during or after T-LoC by someone else
Unusual posturing
Prolonged limb-jerking
Confusion following the event
Prodromal déjà vu or jamais vu

May not be related to epilepsy if the following features are present

Prodromal symptoms that on other occasions have been abolished by sitting or lying
Sweating before the episode
Prolonged standing that appeared to precipitate the T-LoC
Pallor during the episode

Specialist cardiovascular assessment and diagnosis

▪ Reassess the following:

Detailed history of T-LoC including previous events
Medical history and family history of cardiac disease / inherited cardiac condition
Drug therapy at the time of T-LoC and subsequent changes

▪ Clinical examination:

Lying / standing BP
Full cardiovascular examination
Repeat 12 lead ECG

Appendix 8

NICE Guidance 2010 / 2014

Initial assessment and diagnosis

Person presents with suspected TLoC

Use clinical judgement to determine appropriate management and the urgency of treatment if:
- the person has sustained an injury
- the person has not made a full recovery of consciousness
- TLoC is secondary to a condition that requires immediate action

Record details of the suspected TLoC (see box 1) from the person and any witnesses (by telephone if necessary)

Advice to give when a person presents with TLoC
- **Driving** Give advice about eligibility to drive[1]
- **Health and safety at work** Advise people 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 other people[2]

Accounts confirm TLoC?

No

Instigate suitable management[3]

Yes/unclear

Assess and record:
- details of any previous TLoC, including number and frequency
- the person's medical history and family history of cardiac disease (for example, personal history of heart disease and family history of sudden cardiac death)
- current medication that may have contributed to TLoC (for example, diuretics)
- vital signs (for example, pulse rate, respiratory rate and temperature) – repeat if clinically indicated
- lying and standing blood pressure if clinically appropriate
- other cardiovascular and neurological signs

Record a 12-lead ECG (see box 2)

Box 1 Recording information and transfer of records
- Record details about:
  - circumstances of the event
  - person's posture immediately before loss of consciousness
  - prodromal symptoms (such as sweating or feeling warm/hot)
  - appearance (for example, whether eyes were open or shut) and colour of person during the event
  - presence or absence of movement during the event (for example, limb-jerking and its duration)
  - any tongue-biting (record whether the side or the tip of the tongue was bitten)
  - injury occurring during the event (record site and severity)
  - duration of the event (onset to regaining consciousness)
  - presence or absence of confusion during the recovery period
  - weakness down one side during the recovery period
- Record carefully information obtained from all accounts of the TLoC – include paramedic records with this information
- Give copies of electrocardiogram (ECG) record and patient report form to the person, and the receiving clinician when care is transferred

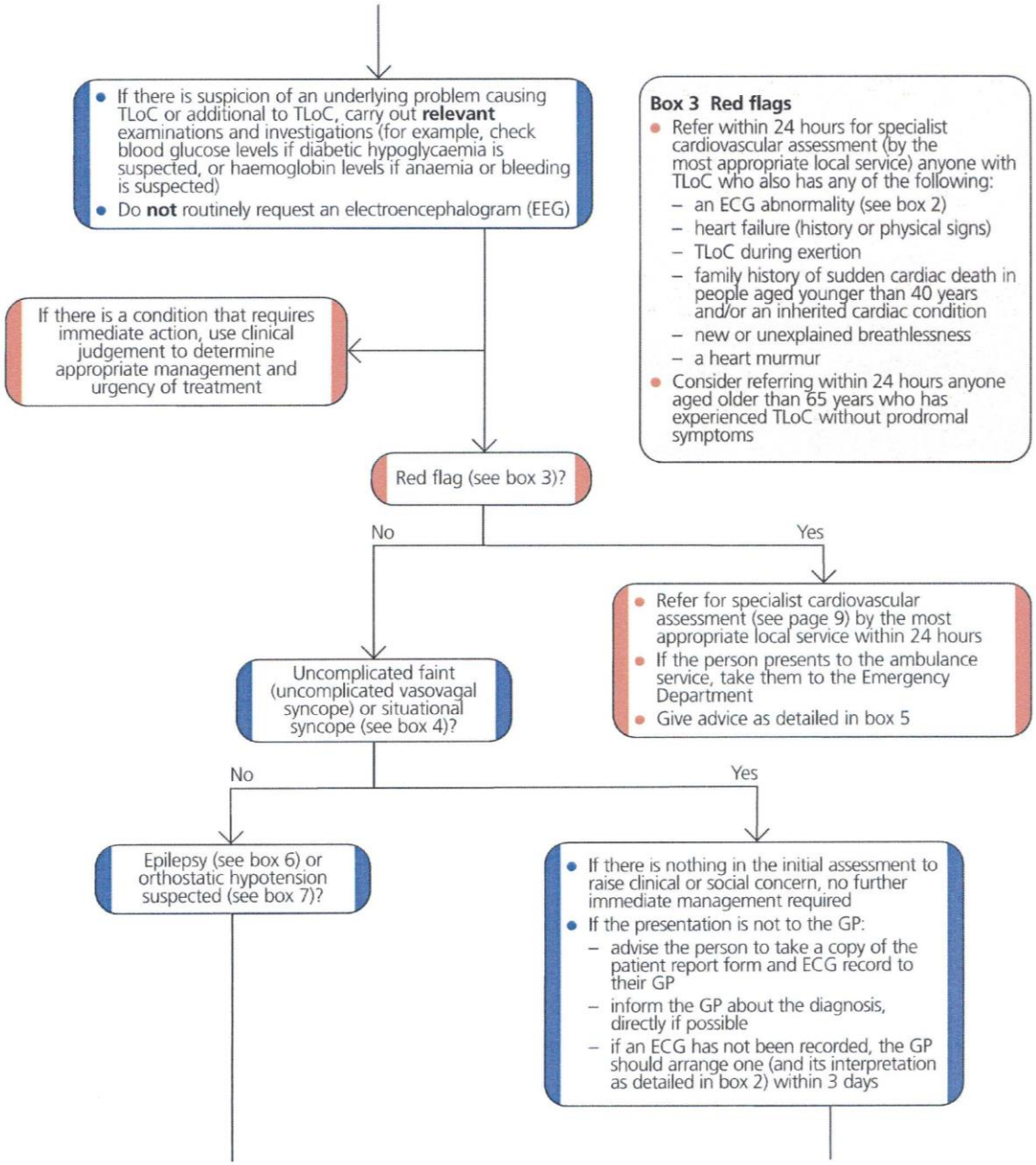
Box 2 12-lead ECG
- Record a 12-lead ECG with automated interpretation
- Treat as a red flag (see box 3) if any of the following abnormalities are reported on the ECG printout:
  - conduction abnormality (for example, complete right or left bundle branch block or any degree of heart block)
  - evidence of a long or short QT interval
  - any ST segment or T wave abnormalities
- If a 12-lead ECG with automated interpretation is not available, take a manual 12-lead ECG reading and have this reviewed by a healthcare professional trained and competent in identifying the following abnormalities:
  - inappropriate persistent bradycardia
  - any ventricular arrhythmia (including ventricular ectopic beats)
  - long QT (corrected QT > 450 ms) and short QT (corrected 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

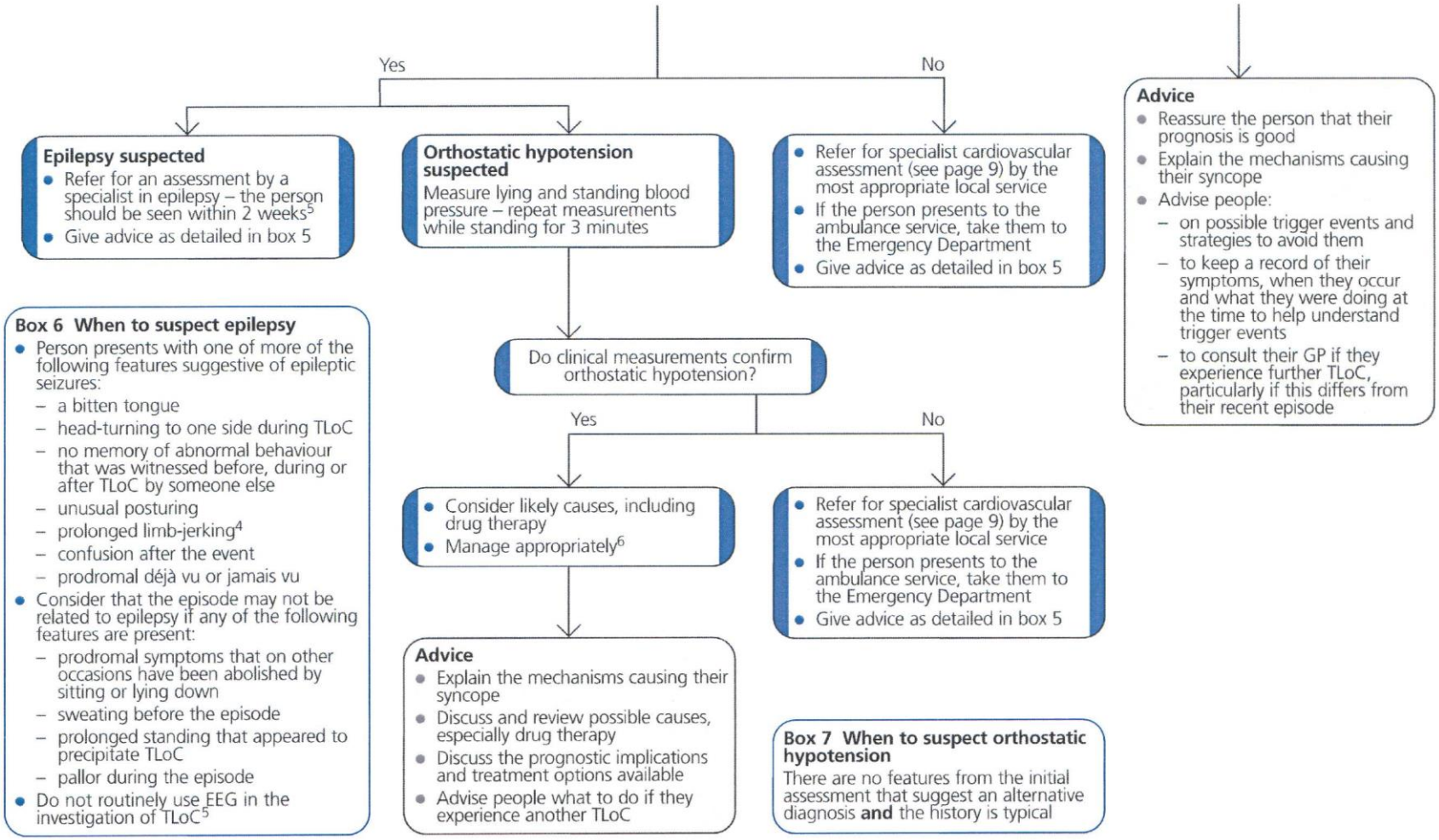
Box 4 Making a diagnosis based on the initial assessment

- **Diagnose uncomplicated faint** (uncomplicated vasovagal syncope) when:
  - there are no features that suggest an alternative diagnosis[4] **and**
  - there are features suggestive of uncomplicated faint (the 3 'P's) such as:
    - **P**osture (prolonged standing, or similar episodes that have been prevented by lying down)
    - **P**rovoking factors (such as pain or a medical procedure)
    - **P**rodromal symptoms (such as sweating or feeling warm/hot before TLoC)
- **Diagnose situational syncope** when:
  - there are no features that suggest an alternative diagnosis **and**
  - syncope is clearly and consistently provoked by straining during micturition (usually while standing) or by coughing or swallowing

Box 5 Advice for people waiting for a specialist assessment

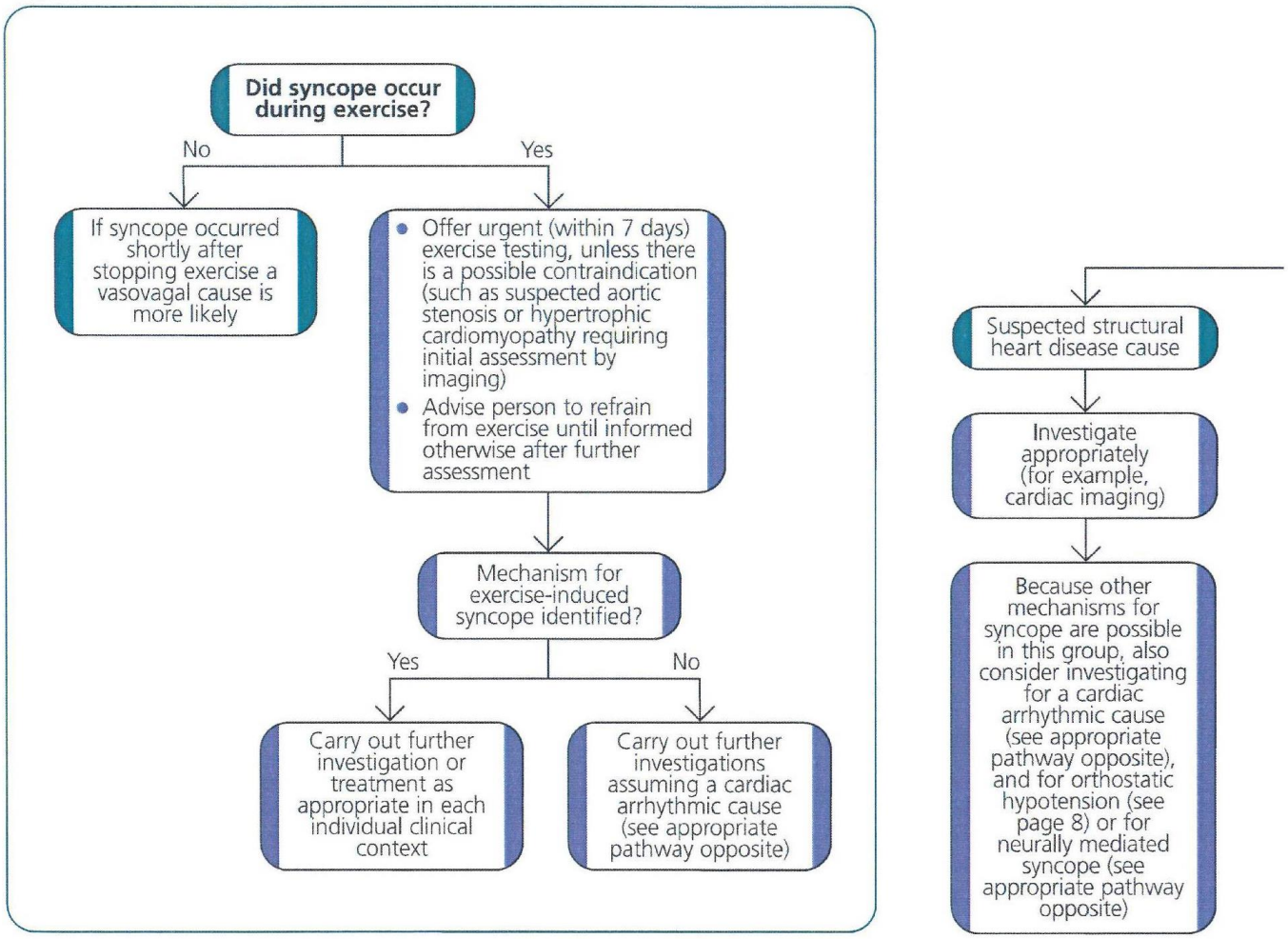
- **Driving**: Advise all people who have experienced TLoC that they must not drive while waiting for specialist assessment. After specialist assessment, the healthcare professional should advise the person of their obligations regarding reporting the TLoC to the Driver and Vehicle Licensing Agency (DVLA)[1]
- **Advise people waiting for a specialist cardiovascular assessment**:
  - what they should do if they have another event
  - if appropriate, how they should modify their activity (for example, by avoiding physical exertion) and not to drive[1]
- **Offer advice to people waiting for a specialist neurological assessment** as recommended in 'The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care' (NICE clinical guideline 20)





[1] Please refer to the DVLA for further information at www.dft.gov.uk/dvla/medical/medical_advisory_information/medicaladvisory_meetings/pmembers_nervous_system.aspx
[2] Please refer to 'Health and Safety at Work etc Act 1974' available from www.hse.gov.uk/legislation/hswa.htm
[3] For example, if the person is determined to have had a fall rather than TLoC, see 'Falls: the assessment and prevention of falls in older people' (NICE clinical guideline 21).
[4] Note that brief seizure-like activity can occur during uncomplicated faints and is not necessarily diagnostic of epilepsy.
[5] See 'The epilepsies: the diagnosis and management of the epilepsies in adults and children in primary and secondary care' (NICE clinical guideline 20).
[6] For example, see 'Falls: the assessment and prevention of falls in older people' (NICE clinical guideline 21).

Specialist cardiovascular assessment and diagnosis



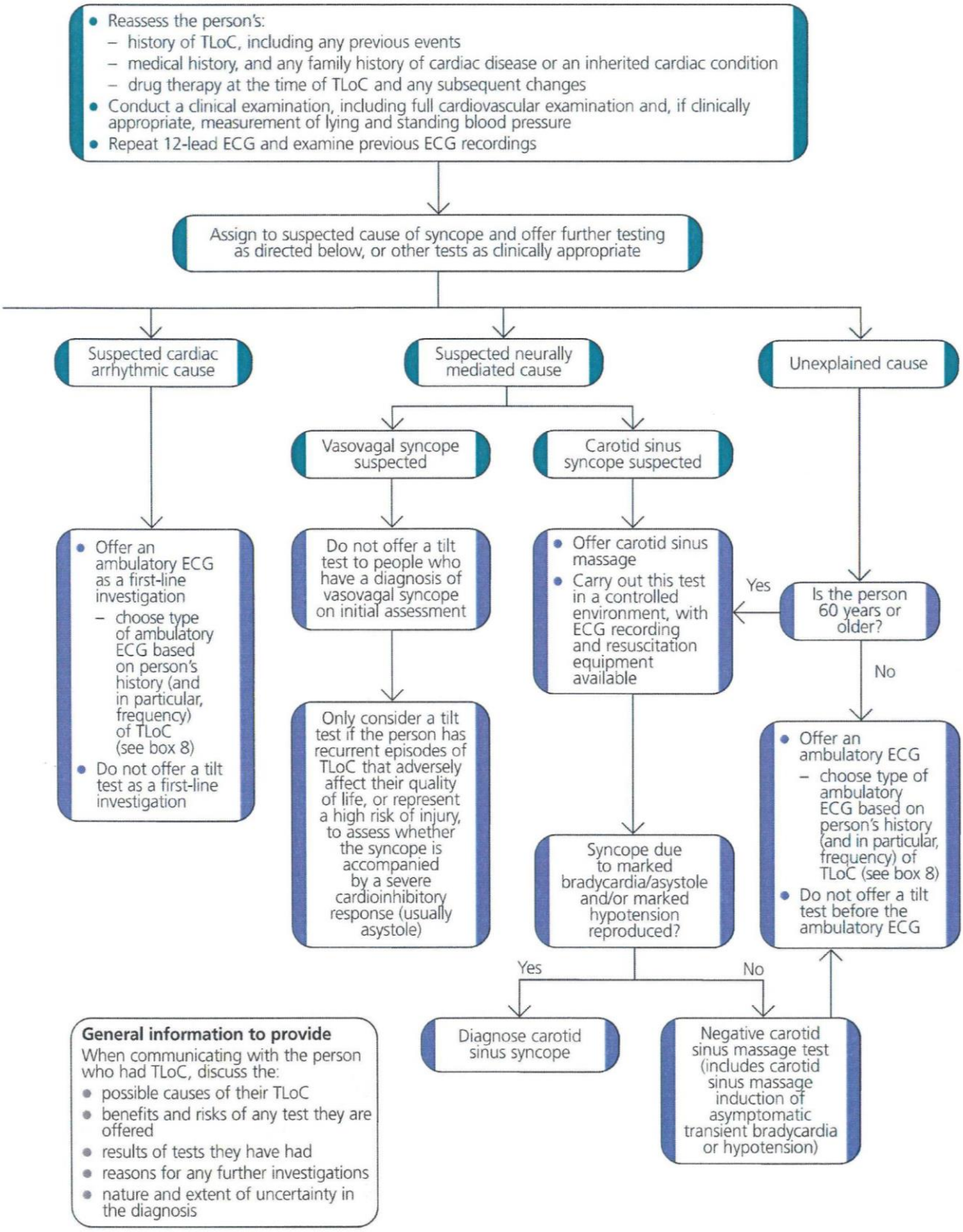
Box 8 Criteria to determine type of ambulatory ECG

For people who have:

- TLoC at least several times a week, 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
- 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[1]
- TLoC infrequently (less than once every 2 weeks), offer an implantable event recorder[1]. A Holter monitor should not usually be offered unless there is evidence of a conduction abnormality on the 12-lead ECG

If the cause of TLoC remains uncertain

- If a person has persistent TLoC, consider psychogenic non-epileptic seizures (PNES) or psychogenic pseudosyncope if, for example:
  - the nature of the events changes over time
  - there are multiple unexplained physical symptoms
  - there are unusually prolonged events
- The distinction between epilepsy and non-epileptic seizures is complex; therefore, refer for neurological assessment if either PNES or psychogenic pseudosyncope is suspected
- Advise people to try to record any future TLoC events (for example, a video recording or a detailed witness account of the event), particularly if diagnosis is unclear or taking a history is difficult
- If after further assessment the cause of TLoC remains uncertain or the person has not responded to treatment, consider other causes, including the possibility that more than one mechanism may co-exist (for example, ictal arrhythmias)



[1] 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 follow-up (data interrogation of the device) after they have any further TLoC. The timing of the follow-up is dependent on the storage of the device and the condition of the person.