

European Society of Cardiology Task Force Report

Guidelines on Management
(Diagnosis and Treatment)
of Syncope

Eur Heart J 2001; 22: 1256-1306

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Full text: Brignole et al. Eur Heart J 2001; 22: 1256-1306

Executive summary: Brignole et al. Europace 2001; 3: 253-268

Both documents can be downloaded from www.escardio.org

Task Force Report: Guidelines on Management of Syncope

Outline:

- Objectives
- Background
- Classification, epidemiology and prognosis
- Diagnosis
- Treatment
- Special issues

Part I: Objectives of the Guidelines

Objectives

To identify:

- When a diagnosis can be considered likely.
- The most appropriate diagnostic work-up.
- How patients with syncope should be risk stratified.
- When patients with syncope should be hospitalized. Which treatments are likely to be effective in preventing syncopal recurrences.

Part II: Background

Background

- Syncope is a transient symptom and not a disease.
- The diagnostic evaluation, and definition of a specific cause of syncope is difficult.
- There is an international need for:
 - Specific criteria to aid diagnosis
 - Clear-cut guidelines on how to choose tests
 - How to evaluate and use the results of tests to establish a cause of syncope
 - Summary recommendations for treatment.

Role of the Task Force

- Develop a comprehensive outline of the issues needing to be addressed.
- Review applicable literature and develop summaries.
- Rank the evidence, and develop consensus recommendations.
- Provide specific recommendations for diagnosis and management of syncope.

Part III: Classification, Epidemiology and Prognosis of Syncope

Definition

Syncope is a symptom, the defining clinical characteristics of which are:

- transient
- self-limited loss of consciousness leading to falling
- onset is relatively rapid
- recovery is spontaneous, complete, and usually prompt.

The underlying mechanism is a transient global cerebral hypoperfusion.

Classification of Syncope

- Syncope must be differentiated from other “non-syncopal” conditions which also lead to transient loss of consciousness.
- Pathophysiological classification is based on the principal causes of the transient loss of consciousness.

Classification of Transient Loss of Consciousness

Real or apparent transient loss of consciousness

Syncope:

- Neurally-mediated reflex syncopal syndromes
- Orthostatic
- Cardiac arrhythmia as primary cause
- Structural cardiac or cardiopulmonary disease
- Cerebrovascular

Non-syncopal attacks:

- With impairment or loss of consciousness
- Without loss of consciousness

Eur Heart J 2001; 22:1256-1306

Causes of Syncope

1. Neurally-mediated reflex syncopal syndromes

- Vasovagal faint (common faint)
- Carotid sinus syncope
- Situational faint
 - Acute haemorrhaging
 - Coughing, sneezing
 - Gastrointestinal stimulation (swallowing, defecation, visceral pain)
 - Micturation (post-micturation)
 - Post-exercise
 - Others (e.g. brass instrument playing, weightlifting, post-prandial)
- Glossopharyngeal and trigeminal neuralgia

Causes of Syncope (cont.)

2. Orthostatic

- **Autonomic failure**
 - Primary autonomic failure syndromes (e.g. pure autonomic failure, multiple system atrophy, Parkinson's disease with autonomic failure)
 - Secondary autonomic failure syndromes (e.g. diabetic neuropathy, amyloid neuropathy)
 - Drugs and alcohol
- **Volume depletion**
 - Haemorrhaging, diarrhea, Addison's disease

Causes of Syncope (cont.)

3. Cardiac arrhythmias as primary cause

- Sinus node dysfunction (including bradycardia/tachycardia syndrome)
- Atrioventricular conduction system disease
- Paroxysmal supraventricular and ventricular tachycardias
- Inherited syndromes (e.g. long QT syndrome, Brugada syndrome)
- Implanted device (pacemaker, ICD) malfunction or drug-induced proarrhythmias

Causes of Syncope (cont.)

4. Structural cardiac or cardiopulmonary disease

- Cardiac valvular disease
- Acute myocardial infarction/ischaemia
- Obstructive cardiomyopathy
- Atrial myxoma
- Acute aortic dissection
- Pericardial disease/tamponade
- Pulmonary embolus/pulmonary hypertension

5. Cerebrovascular

- Vascular steal syndromes

Causes of Non-syncopal Attacks (Commonly Misdiagnosed as Syncope)

1. Disorders with impairment or loss of consciousness
 - Metabolic disorders, including hypoglycaemia, hypoxia, hyperventilation with hypocapnia
 - Epilepsy
 - Intoxication
 - Vertebro-basilar transient ischaemic attack (TIA)
2. Disorders resembling syncope without loss of consciousness
 - Cataplexy
 - Drop attacks
 - Psychogenic 'syncope' (somatization disorders)
 - TIA of carotid origin

Epidemiology of Syncope

- The Framingham study reports an incidence of 7.2 per 1000 person-year in a broad population sample.
- Assuming a constant incidence rate over time, the Framingham study calculates a 10-year cumulative incidence of 6%.
- In selected populations, such as the elderly, the annual incidence may be as high as 6%, with a recurrence rate of 30%.

Syncope: Reported Frequency

- Individuals <18 yrs **15%**
- Military Population 17- 46 yrs **20-25%**
- Individuals 40-59 yrs* **16-19%**
- Individuals >70 yrs* **23%**

*during a 10-year period

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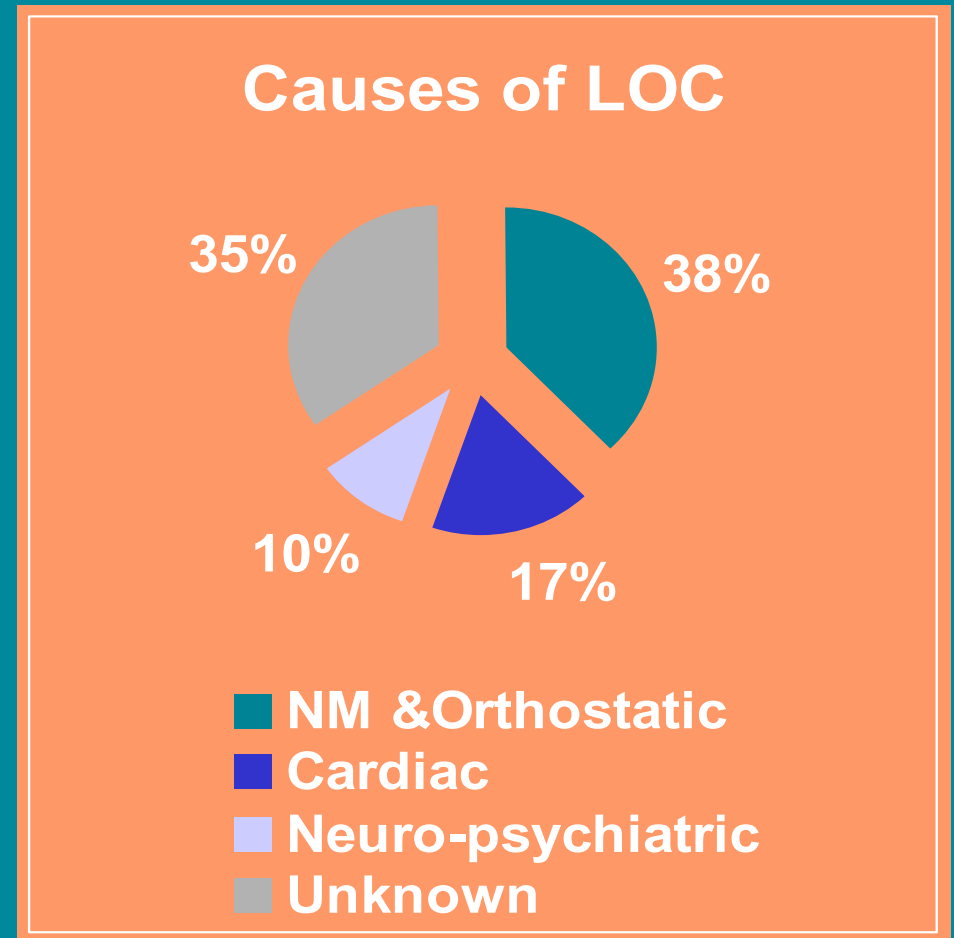
Causes of Loss of Consciousness

- In a substantial proportion of patients, the cause of syncope remains unknown, despite a complete work-up.
- In several studies, the cause could not be determined in 18-36% of all cases of syncope.

Causes of Loss of Consciousness

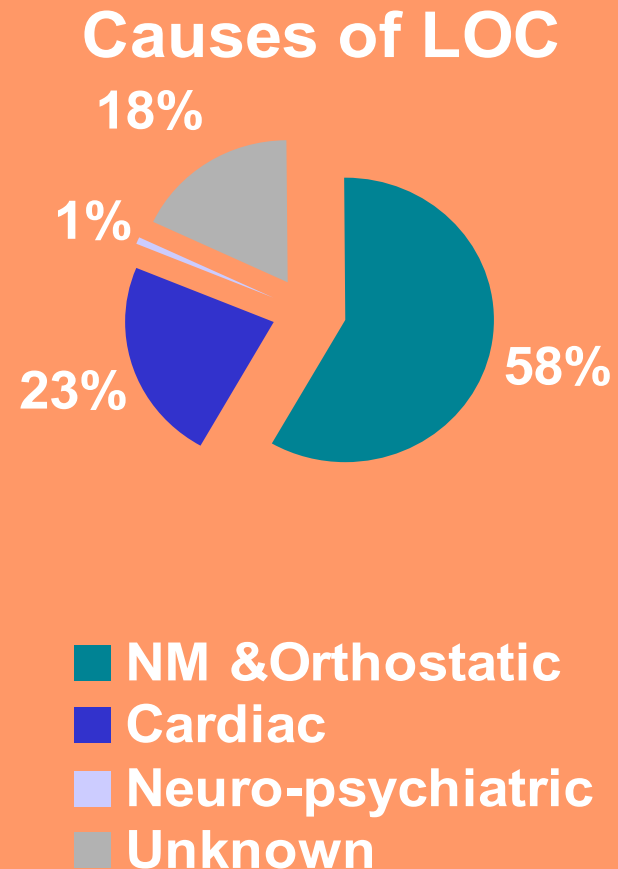
- Data pooled from 6 population-based studies performed in the 1980's
- N = 1499 patients
- The cause was undetermined in 34% of all cases of syncope
- Of those with a cardiac cause (n=245), the majority (n=195) were due to a primary arrhythmic mechanism

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Causes of Loss of Consciousness

- Data pooled from 3 referral Syncope Units in 2001
- N = 342 patients
- The cause was undetermined in 18% of all cases of syncope
- Of those with a cardiac cause (n=78), the majority (n=68) were due to a primary arrhythmic mechanism



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Impact of Syncope

- Recurrences in $\approx 35\%$ of patients at 3 years.
- Cardiac causes result in increased mortality.
- Syncope can result in other physical injuries to the patient (e.g. broken bones) or to others (e.g. due to motor vehicle accidents).
- Recurrent syncope has a significant negative impact on quality of life.
- Recurrences often prompt a hospital admission and expensive testing, resulting in considerable economic implications.

Prognostic stratification

Structural heart disease is the most important predictor of total mortality and sudden death in patients with syncope.

Prognostic stratification

Poor prognosis:

- Structural heart disease
(*independent of the cause of syncope*)

Excellent prognosis:

- Young, healthy, normal ECG
- Neurally-mediated syncope
- Orthostatic hypotension
- Unexplained syncope

Prognostic stratification

Risk stratification:

- age >45
- history of congestive heart disease
- history of ventricular arrhythmias
- abnormal ECG

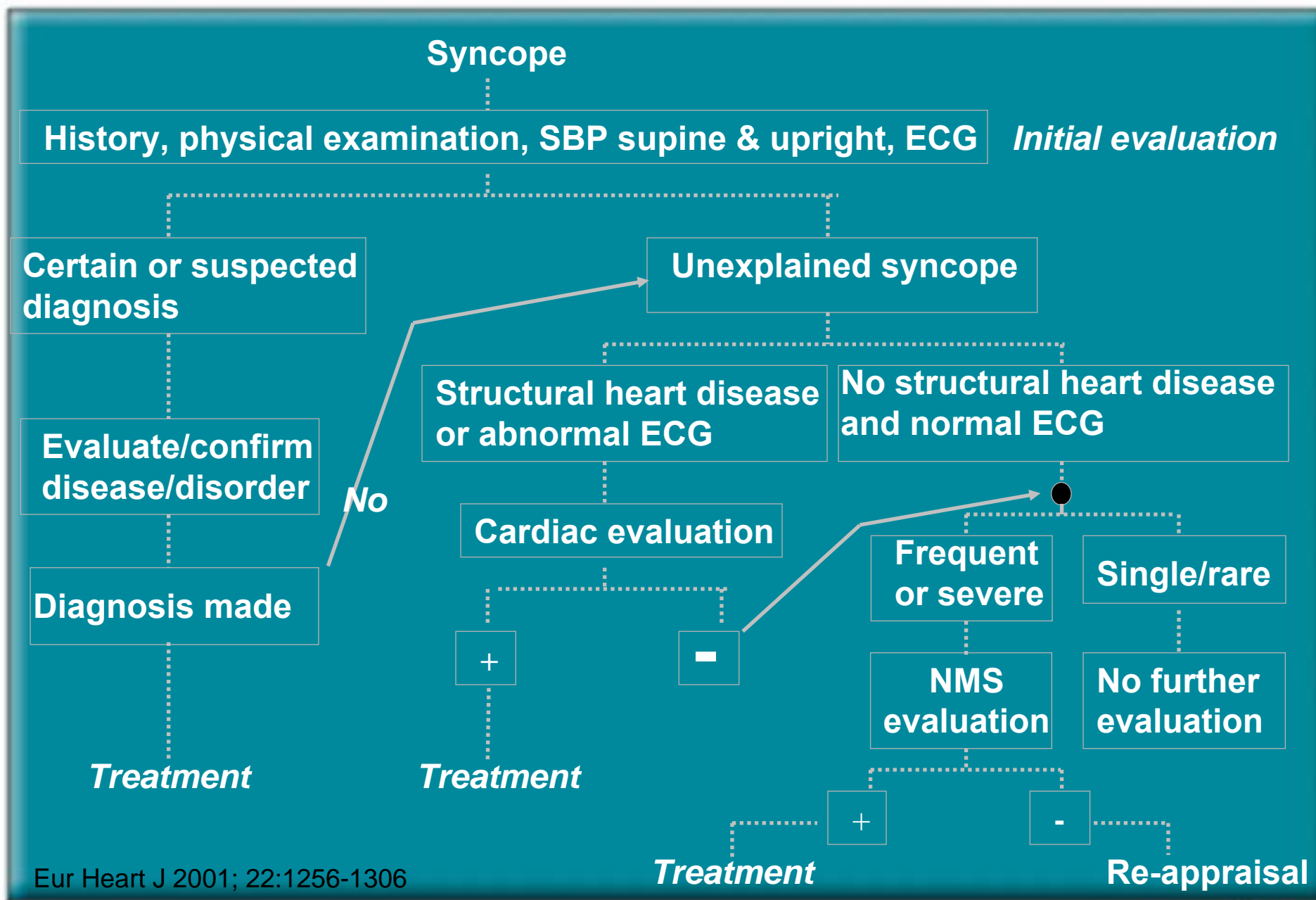
*Arrhythmias or death within one year :
from 4-7% of patients with 0 factors
to 58-80% in patients with ≥ 3 factors*

Part IV: Diagnosis

Strategy of Evaluation

Management strategy

- **Initial evaluation**
(history, physical exam, ECG, BP supine and upright)
- **Laboratory investigations guided by the initial evaluation**
- **Re-appraisal**
- **Treatment**



Diagnosis

Initial Evaluation

Initial evaluation

3 key questions:

Question #1

- Syncope or non-syncopal attack ?

Question #2

- Is heart disease present or absent ?

Question #3

- Which history of syncope ?

Initial evaluation

Important historical features

1 - Questions about circumstances just prior to attack

- Position (supine, sitting or standing)
- Activity (supine, during or after exercise)
- Situation (urination, defecation, cough or swallowing)
- Predisposing factors (e.g., crowded or warm places, prolonged standing, post-prandial period)
- Precipitating events (e.g., fear, intense pain, neck movements)

2 - Questions about onset of attack

- Nausea, vomiting, feeling of cold, sweating, aura, pain in neck or shoulders

3 - Questions about attack (eyewitness)

- Skin colour (pallor, cyanotic)
- Duration of loss of consciousness
- Movements (tonic-clonic, etc)
- Tongue biting;

Initial evaluation

Important historical features

5 - Questions about end of attack

- Nausea, vomiting, diaphoresis, feeling of cold, confusion, muscle aches, skin colour, wounds

6 - Questions about background

- Number and duration of syncopes
- Family history of arrhythmogenic disease
- Presence of cardiac disease
- Neurological history (parkinsonism, epilepsy, narcolepsy)
- Internal history (diabetes, etc.)
- Medication (hypotensive and antidepressant agents)

Initial evaluation

Diagnostic criteria

- *Vasovagal syncope* is diagnosed if precipitating events such as fear, severe pain, emotional distress, instrumentation and prolonged standing are associated with typical prodromal symptoms.
- *Situational syncope* is diagnosed if syncope occurs during or immediately after urination, defecation, cough or swallowing.
- *Orthostatic syncope* is diagnosed when there is a documentation of orthostatic hypotension associated with syncope or presyncope.

Initial evaluation

ECG diagnostic criteria

Syncope due to cardiac arrhythmia is diagnosed in case of:

- Symptomatic sinus bradycardia <40 beats/min or repetitive sinoatrial blocks or sinus pauses >3 s
- Mobitz II 2nd or 3rd degree atrioventricular block
- Alternating left and right bundle branch block
- Rapid paroxysmal supraventricular tachycardia or ventricular tachycardia
- Pacemaker malfunction with cardiac pauses

Initial evaluation

ECG diagnostic criteria

Syncope due to cardiac ischaemia

is diagnosed when symptoms are present with ECG evidence of acute myocardial ischaemia with or without myocardial infarction, independently of its mechanism (*)

** The mechanism can be cardiac (low output or arrhythmia) or reflex (Bezold-Jarish reflex), but management is primarily that of ischaemia.*

Clinical and ECG features Suggesting Cardiac Syncope

- **Syncope during exertion or supine**
- **Palpitations at the time of syncope**
- **Suspected VT (e.g. heart failure or NSVT)**
- **BBB**
- **Mobitz 1 second degree AVB**
- **Sinus bradycardia <50 bpm**
- **WPW**
- **Long QT**
- **ARVD or Brugada S.**

Clinical and ECG Features Suggesting Neurally-mediated Syncope

- After sudden unexpected unpleasant sight, sound, or smell.
- Prolonged standing or crowded, warm places.
- Nausea, vomiting associated with syncope.
- Within one hour of a meal (post-prandial).
- After exertion.
- Syncope with throat or facial pain (glossopharyngeal or trigeminal neuralgia).
- With head rotation, pressure on carotid sinus (spontaneous carotid sinus syncope).

Diagnosis

Laboratory Investigations

Laboratory investigations

Certain or suspected heart disease

yes

Cardiac evaluation

- Echocardiogram
- ECG monitoring
- Exercise test
- EP study
- ILR

no

NM evaluation

- Carotid sinus massage
- Tilt testing
- ATP test
- ILR

Eur Heart J 2001; 22:1256-1306

Laboratory investigations

<i>Useful (when indicated)</i>	Carotid sinus massage Tilt testing Echocardiogram Holter/loop monitoring Electrophysiological test Exercise stress testing Implantable loop recorder
<i>Almost never useful</i>	EEG CT scan & MNR Carotid Doppler sonography Ventricular SAECG Coronary angiography Pulmonary scintigraphy

Diagnosis Re-appraisal

Re-appraisal

- Obtaining details of history
- Performing NM tests in patients with heart disease
- Cardiac evaluation in patients without heart disease
- Neuropsychiatric evaluation

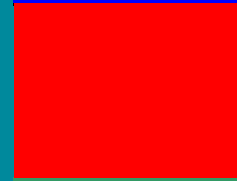
Diagnostic Yield

Initial evaluation



52%

Laboratory tests



14%

Unexplained

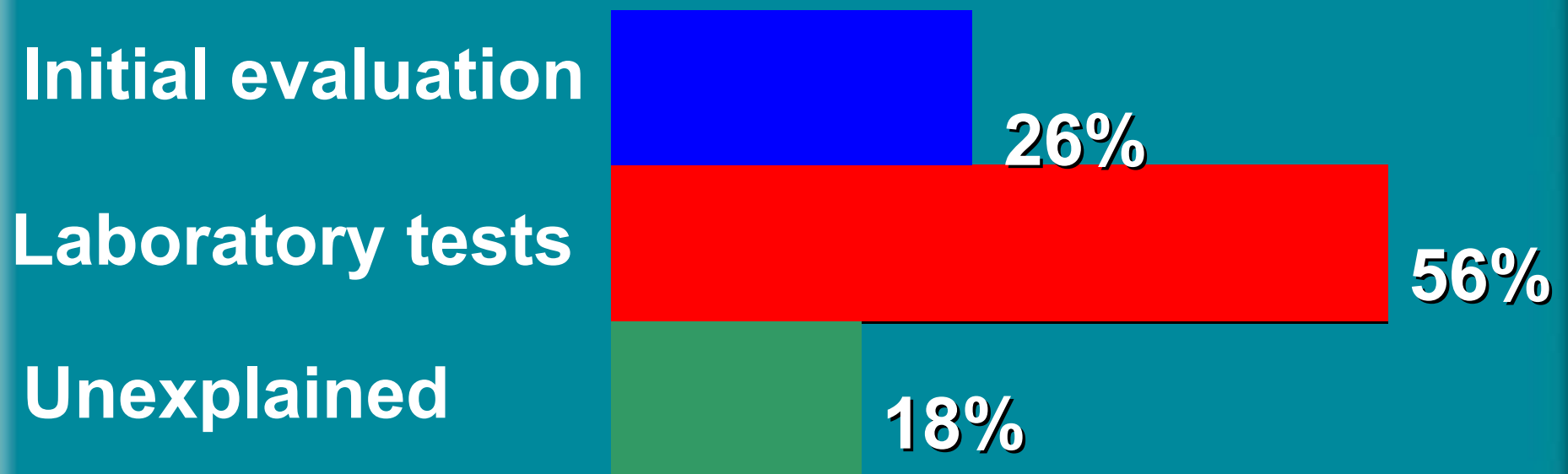


34%

Data pooled from 7 population-based studies in the 1980's (N = 1607)

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Diagnostic Yield



Data from 3 Syncope Units (total 342 patients)

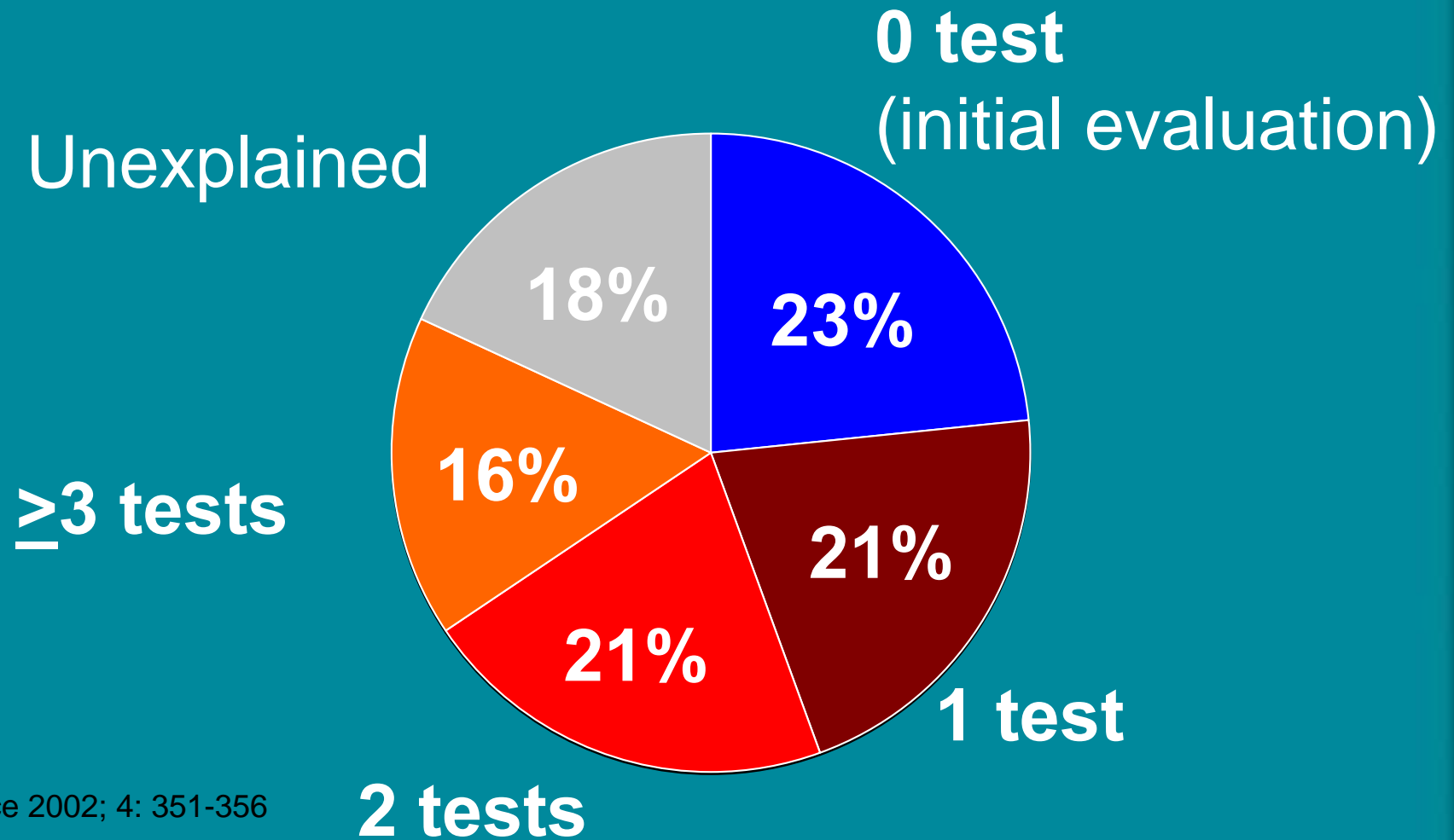
Eur Heart J 2001; 22:1256-1306

Diagnostic Yield

<i>Test</i>	APPROPRIATE	DIAGNOSTIC	<i>NND</i>
History/physical ex/ supine-upright BP	308 (100%)	47 (15%)	7
ECG	241 (78%)	25 (10%)	10
Echocardiogram	103 (33%)	3 (3%)	34
ECG monitoring	82 (27%)	13 (16%)	6
Exercise test	22 (7%)	1 (5%)	22
CSM	177 (57%)	44 (24%)	4
Tilt testing	161 (52%)	94 (58%)	2
ATP test	47 (15%)	7 (15%)	7
EP study	51 (17%)	14 (27%)	4

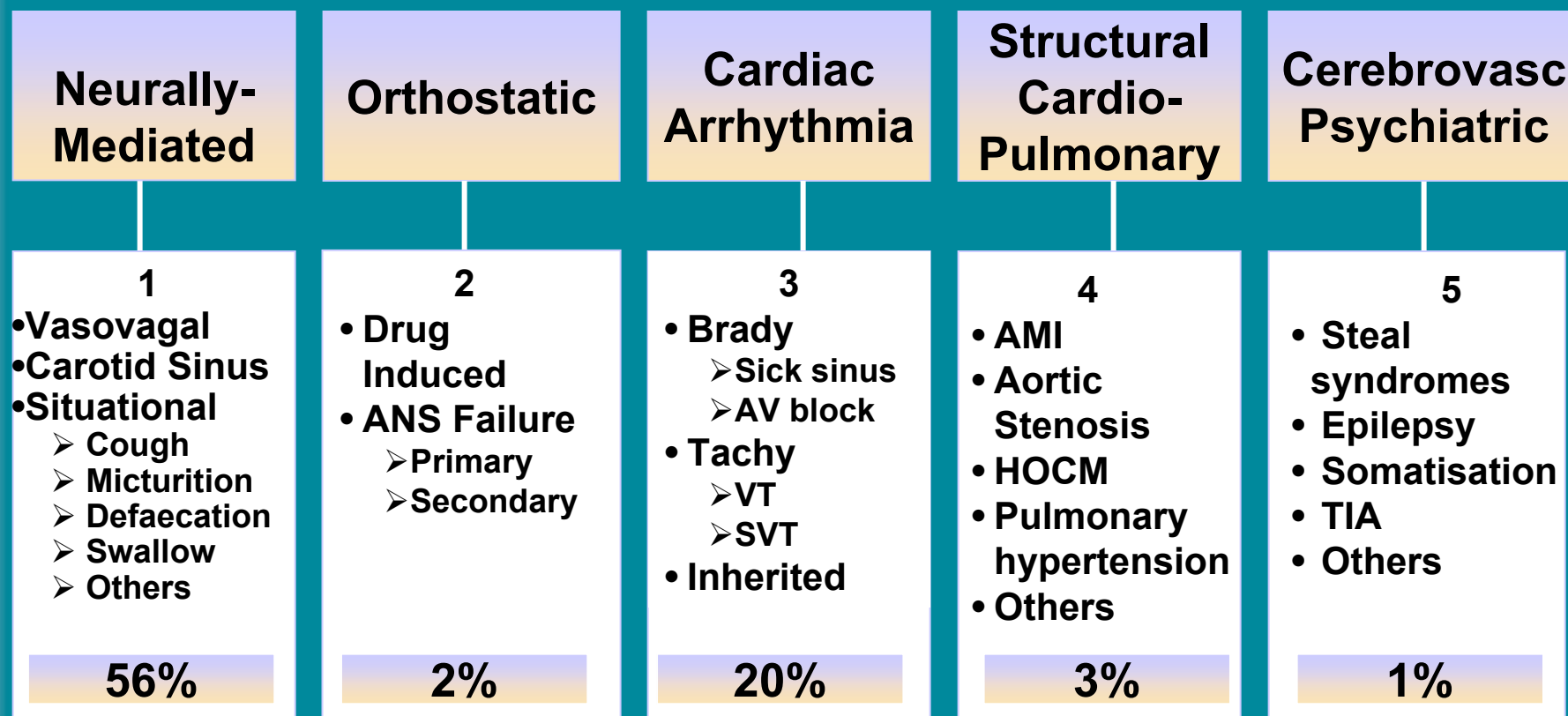
Europace 2002; 4: 351-356

Number of laboratory test/s necessary for diagnosis (other than Initial Evaluation)



Europace 2002; 4: 351-356

Causes of Loss of Consciousness in Patients Referred to Syncope Clinics



Unknown Cause = 18%

Eur Heart J 2001; 22:1256-1306

JACC 2001; 37: 1921-1928

Part V: Treatment

Treatment of Syncope: Outline

- General principles
- Neurally-mediated reflex syncopal syndromes
- Orthostatic hypotension
- Cardiac arrhythmias as primary cause
- Structural cardiac or cardiopulmonary disease
- Vascular steal syndromes
- Metabolic disturbances

Classification of Task Force Recommendations

The strength of recommendations:

- Class I:** Evidence for, and/or general agreement that the procedure or treatment is useful.
- Class II:** Usefulness of procedure or treatment less well established, or divergence of opinion among Task Force members.
- Class III:** The procedure or treatment is not useful and in some cases may be harmful.

Levels of Evidence

The strength of evidence :

Level A = Data derived from multiple randomized clinical trials or meta-analyses.

Level B = Data derived from a single randomized trial or multiple non-randomized studies.

Level C = Consensus opinion of experts.

Treatment of Syncope: General Principles

- **Principal goals of treatment:**
 - Prevent recurrences
 - Reduce risk of mortality
- **Additional goals:**
 - Prevent injuries associated with recurrences
 - Improve quality of life

Treatment of Neurally-mediated Reflex Syncopal Syndromes (cont.)

Class I Recommendations:

- Explanation of the risk, and reassurance about the prognosis (level C).
- Recognition of premonitory symptoms and manoeuvres to abort the episode (level C).
- Avoidance of trigger events when feasible and causal situation in situational syncope (level C).
- Modification or discontinuation of hypotensive drug treatment for concomitant conditions (level B).
- Cardiac pacing in patients with cardioinhibitory or mixed carotid sinus syndrome (level B).

Treatment of Neurally-mediated Reflex Syncopal Syndromes (cont.)

Class II Recommendations:

- Volume expansion by salt supplements, an exercise programme or head-up tilt sleeping ($> 10^\circ$) in posture-related syncope (Level B).
- Cardiac pacing in patients with cardioinhibitory vasovagal syncope with a frequency of > 5 attacks per year, or severe physical injury or accident and age > 40 (Level B).
- Tilt training in patients with vasovagal syncope (Level B).

Treatment of Neurally-mediated Reflex Syncopal Syndromes (cont.)

Class III Recommendations:

- The evidence fails to support the efficacy of beta-adrenergic blocking drugs. Beta-adrenergic blocking drugs may aggravate bradycardia in some cardioinhibitory cases (Level A).

Treatment of Orthostatic Hypotension

- **Treatment Goals:**
 - Prevention of symptom recurrence and associated injuries
 - Improved quality of life
 - Establish the underlying diagnosis

Treatment of Orthostatic Hypotension (cont.)

CAUSE	TREATMENT
Drug-induced autonomic failure	Eliminate the offending agent
Primary & secondary autonomic failure	Modify physical factors that influence systemic blood pressure

Treatment of Orthostatic Hypotension

Class I Recommendations:

- Syncope due to orthostatic hypotension should be treated in ALL patients. In many instances, treatment entails only modification of drug treatment for concomitant conditions.

Treatment of Cardiac Arrhythmias as Primary Cause

- **Treatment Goals:**
 - Prevention of symptom recurrence
 - Improved quality of life
 - Reduction of mortality risk

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

Class I Recommendations:

- Syncope due to cardiac arrhythmias must receive treatment appropriate to the cause in all patients in whom it is life-threatening and when there is a high risk of injury.

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

Class II Recommendations:

- Treatment may be employed when the culprit arrhythmia has not been demonstrated and a diagnosis of life-threatening arrhythmia is presumed from surrogate data.
- Treatment may be employed when a culprit arrhythmia has been identified but is not life-threatening or presenting a high risk of injury.

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

Sinus node dysfunction

(including bradycardia/tachycardia syndrome)

- Cardiac pacemaker therapy is indicated and is proven highly effective when bradyarrhythmia is documented as the cause of the syncope (Class I, Level B).
- Physiological pacing (atrial or dual-chamber) is superior to VVI pacing (Class I, Level A).
- Elimination of drugs that may increase susceptibility to bradycardia should be considered (Level C).
- Catheter ablation for control of atrial arrhythmias may have a role in selected patients with brady-tachy syndrome (Level C).

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

AV conduction system disease

- Cardiac pacing is first-line therapy for treatment of syncope in symptomatic AV block (Class I, Level B).
- Pacing improves survival and prevents syncopal recurrences in patients with heart block (Level B).
- Pacing may be life-saving in patients with BBB and syncope (if suspected mechanism is intermittent AV block) (Level C).
- Consider VT or VF as a possible cause of syncope in these patients if they also have LV dysfunction.

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

Paroxysmal SVT and VT

- SVTs are uncommon as a cause of syncope.
- Syncope due to acquired torsades de pointes (TdP) as a result of drugs is not uncommon. The causal drug should be eliminated immediately.
- In syncope due to VT, amiodarone may provide benefit in the absence of heart disease. If LV function is depressed, an ICD is warranted.
- The RV outflow tract and bundle-branch reentry forms of VT may be amenable to catheter ablation. (An ICD is also indicated with LV dysfunction.)

Indications for ICD therapy

Class I Recommendations:

- Documented syncopal VT or VF (Level A).
- Undocumented syncope, previous MI and inducible SMVT (Level B).

Class II Recommendations:

- Unexplained syncope and depressed ventricular function (Level B).
- Established long QT syndrome, Brugada syndrome, ARVD or HOCM with a family history of sudden death (Level C).
- Brugada syndrome or ARVD and inducible VT/VF (Level C).

Treatment of Cardiac Arrhythmias as Primary Cause (cont.)

Implanted device (pacemaker, ICD) malfunction

- Implantable pacing systems are rarely the cause of syncope or near-syncope.
- If syncope is attributable to the implanted device:
 - Evidence of battery depletion/failure, or lead failure device or lead replacement is indicated.
 - Evidence of pacemaker syndrome, device re-programming or replacement is indicated.
 - In the event an ICD fails to detect and/or treat an arrhythmia, re-programming generally resolves the problem.

Treatment of Vascular Steal Syndromes

- Syncope associated with upper extremity exercise in the setting of subclavian steal syndrome may warrant surgery or angioplasty.
- Direct corrective angioplasty or surgery is usually feasible and effective (Class I, level C).

Metabolic Disturbances: Hyperventilation

- Hyperventilation resulting in hypocapnia and transient alkalosis may be responsible for confusional states or behavioral disturbances.
- Clearcut distinction between such symptoms and syncope may be difficult.
- Frequently associated with anxiety episodes and/or 'panic' attacks.
- Recurrent faints associated with hyperventilation should justify a psychiatric consultation.

Part VI:

Special Issues in Evaluating Patients with Syncope

When to Hospitalize a Patient with Syncope (for Diagnosis)

- Suspected or known significant heart disease.
- ECG abnormalities suggesting an arrhythmia.
- Syncope during exercise.
- Syncope occurring in supine position.
- Syncope causing severe injury.
- Family history of sudden death.
- Sudden onset of palpitations in the absence of heart disease.
- Frequent recurrent episodes.

When to Hospitalize a Patient with Syncope (for Treatment)

- **Cardiac arrhythmias as cause of syncope.**
- **Syncope due to cardiac ischaemia.**
- **Syncope secondary to structural cardiac or cardiopulmonary diseases.**
- **Stroke or focal neurologic disorders.**
- **Cardioinhibitory neurally-mediated syncope when a pacemaker implant is planned.**

Syncope in the Older Adult: Background

- Incidence ≥ 6 % per year
- Prevalence 10%
- Two-year recurrence 30%
- Most common causes of syncope:
 - Orthostatic hypotension (20-30% of patients)
 - Carotid sinus hypersensitivity (up to 20% of patients)
 - Neurally-mediated syncope (up to 15%)
 - Cardiac arrhythmias (up to 20%)

Syncope in the Older Adult: Diagnostic Evaluation

- Pursue witness accounts when possible.
- Include in history taking:
 - social circumstances, injurious events, impact of events on confidence, ability to perform ADLs independently.
- Determine timing of syncope occurrence:
 - orthostatic hypotensive events usually occur in the AM
 - Association with meals, medications, nocturnal micturition, etc...
- Detailed medication history.
- Co-morbid diagnoses (especially Parkinson's, diabetes, anaemia, hypertension, ischaemic heart disease, heart failure).

Syncope in the Older Adult: Examination

- **Assessment of neurological and locomotor systems**
 - Including observation of gait and standing balance (eyes open & eyes closed).
- **Determine if cognitive impairment is present (mini-mental state examination).**

Syncope in the Older Adult: Investigations

- The diagnostic evaluation should include the same basic components as for younger adult.
- Exception is routine supine and upright carotid sinus massage.
- Repeated morning measurements are recommended to determine if orthostatic hypotension exists.
- 24-hr ambulatory BP may be helpful if meals or medications are suspected.
- If symptoms continue, or > 1 cause is suspected, further evaluation is indicated.

Syncope in the Older Adult: Evaluation of the Frail and Elderly

- **The rigor of assessment should depend on compliance with tests and on prognosis.**
- **For patients who have difficulty standing unaided, head-up tilt can be used to assess orthostatic changes.**
- **Clinical decisions regarding the value of a syncope evaluation should be made for each patient based on the benefits to the individual.**

Syncope in the Older Adult: Conclusions

Class I Recommendations:

- **Morning orthostatic blood pressure measurements and supine and upright carotid massage are integral to the initial evaluation unless contraindicated.**
- **The evaluation of mobile, independent, cognitively normal older adults is as for younger individuals.**
- **In frailer older adults, evaluation should be modified according to prognosis.**

Syncope in Pediatric Patients: Background

- As many as 15% of children may have at least one episode of syncope prior to age 18.
- Most common causes of syncope:
 - Neurally-mediated syncope (61-71%)
 - Cerebrovascular and psychogenic syncope (11-19%)
 - Cardiac syncope (6%)

Syncope in Pediatric Patients: Differential Diagnosis

- **Careful personal and family history:**
 - First-degree relative who faints?
 - Any history of: LQTS, Brugada, Kearns-Sayre syndrome, AF, WPW, catecholaminergic polymorphic VT, ARVD, congenital heart disease repair, HOCM, anomalous coronary artery, pulmonary artery hypertension, or myocarditis.
- **Cardiac aetiology should be suspected:**
 - In the presence of congenital, structural or functional heart disease
 - Syncope with exertion.

Syncope in Paediatric Patients: Diagnostic Work-up

- Physical exam and ECG.
- Tilt-testing can probably be deferred until after a second episode if history indicative of neurally-mediated syncope.
- Tilt test duration should be shorter in teenagers than in adults (≤ 10 min).
- 24-hour Holter or loop-recorder should be used for syncope with palpitations.
- Cardiac consult and ECHO for evidence of heart murmur.
- EEG is indicated for prolonged loss of consciousness, seizure activity, and postictal phase of lethargy/confusion.

Syncope in Pediatric Patients: Therapy

- **Neurally-mediated syncope: behavior modification, salt, increased fluids.**
- **Pharmacological therapy reserved for continued symptoms despite behavior modification.**
- **Pacemakers should be avoided whenever possible.**
- **Breath-holding spells do not require therapy unless longer asystole is present (potential for cerebral injury).**

Driving and Syncope

ESC Task Force report on driving and heart disease
(1998)*

- **Group 1:**
 - Motorcycles, cars and small vehicles with/without trailer
- **Group 2:**
 - Vehicles over 3.5 metric tonnes, passenger vehicles > 9 seats
- **Intermediate:**
 - Taxicabs, small ambulances and some other vehicles

* Eur Heart J 1998; 19: 1165-77

Driving Recommendations: Group 1

Diagnosis	Disqualifying Criteria
Cardiac Arrhythmias	Any cardiac rhythm likely to cause syncope
Pacemaker implant, successful catheter ablation	Within 1 week
ICD implant	Within 6 months w/out recurrence, no disabling symptoms w/ICD discharge Prophylactic: No restrictions
Situational forms of NMS	No restrictions
VVS & CSS- Single episode, mild	No restrictions
VVS & CSS – Severe symptoms	Until symptoms controlled
Syncope unknown cause	Until cause identified if severe; or at least 3 months w/out symptoms

Driving Recommendations: Group 2

Diagnosis	Disqualifying Criteria
Cardiac Arrhythmias	Any cardiac rhythm likely to cause syncope
Pacemaker implant, successful catheter ablation	Any persistent symptoms Re-license after 6 weeks if no symptoms
ICD implant	Permanent restrictions
Situational forms of NMS	No restrictions
CSS – Single episode, mild	No restrictions
VVS – single episode, mild	Specialist evaluation w/neurological review
VVS & CSS- Severe symptoms	Until symptoms controlled
Syncope unknown cause	Restrictions lifted after 3 months only if specialist evaluation & neurological review are satisfactory

Glossary of Uncertain Terms: Panel Recommendations

- Not to use 'convulsive' syncope - it carries the risk of increasing confusion between syncope & epilepsy.
- Use of 'drop attacks' should be restricted to: a fall to ones knees w/out loss of consciousness.
- The use of 'dysautonomia' should be reserved for Riley-Day syndrome.
- It is unknown whether hyperventilation can cause loss of consciousness.
- Use of 'pre-syncope' is an imprecise term for all sensations preceding syncope, regardless of loss of consciousness.

Glossary of Uncertain Terms: Panel Recommendations (cont.)

- ‘Neurally-mediated’ syncope is a synonym for ‘reflex’ syncope.
- ‘Neurocardiogenic’ syncope should be used strictly for reflex syncope in which the reflex trigger originates in the heart.
- ‘Vasodepressor syncope’ should be used strictly for reflex syncope in which the vasodepressor reflex is documented to occur in the absence of reflex bradycardia.
- ‘Neurogenic’ syncope is a superfluous alternative for ‘reflex syncope’.
- ‘Orthostatic intolerance’ should be restricted to summarizing a patient’s complaints.