

UPDATES IN SYNCOPE

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OBJECTIVES:

- 1. BASIC PATHOPHYSIOLOGY**
- 2. AHA/HRS/ACC/ ESC
GUIDELINE UPDATES**
- 3. KEY RISK STRATIFICATION
TOOLS**
- 4. NEW STUDIES IN PAST 2
YEARS**

CONFLICT OF INTERESTS

- None
- But a shameless plug at the end

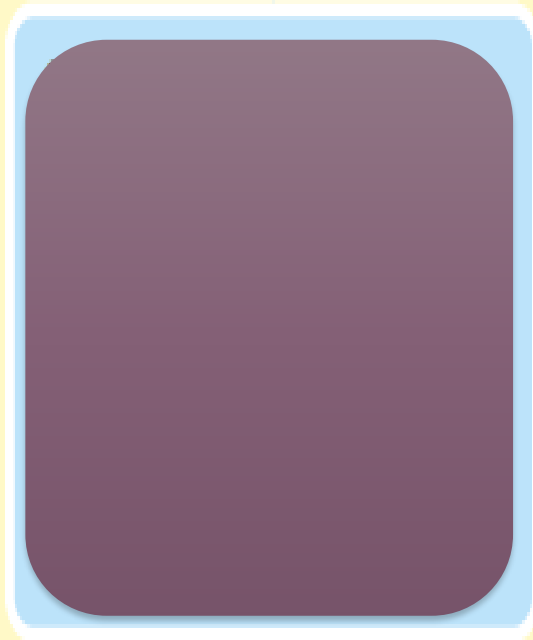
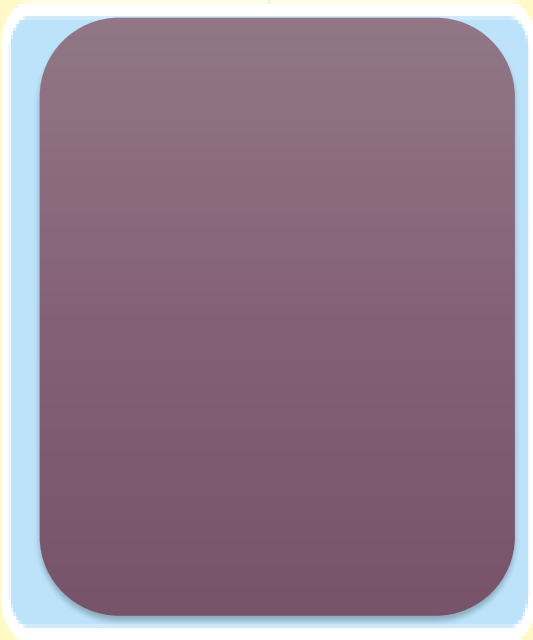
WHY IS THIS IMPORTANT?

- Approximately **1-1.5%** of all ED.
- Up to **6%** of hospital admissions.
- Up to **30%** of unexplained falls in elderly patients.
- **1 in 5** people experience syncope in their lifetime.
- Up to **10%** of cases of Thoracic Aortic Dissection, Acute Coronary Syndrome, Subarachnoid Hemorrhage, or Pulmonary Embolus.

CARDIOGENIC SYNCOPE IS...

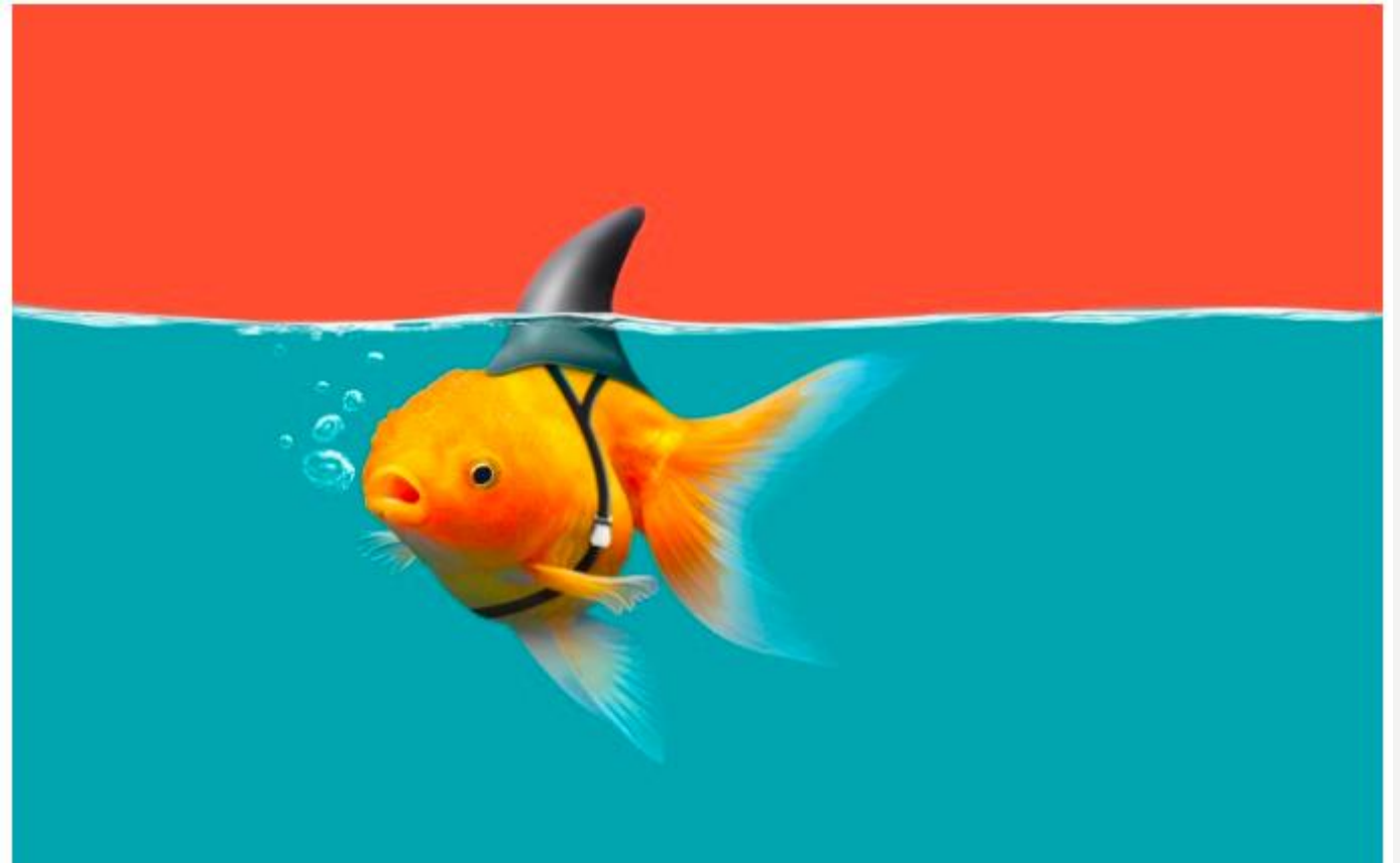
- Temporary loss of consciousness usually related to insufficient blood flow to the brain.
- Hypotension

Syncope



SYNCO PAL MIMICS:

1. Hypoglycemia
2. Hypoxemia
3. Heat Stroke
4. Hyperventilation
5. CO Poisoning
6. Toxins
7. Seizures



[https://www.jem-journal.com/article/S0736-4679\(17\)30868-5/pdf](https://www.jem-journal.com/article/S0736-4679(17)30868-5/pdf)

THE KEY IS A GOOD HISTORY!!!

SYNCOPE SYMPTOMS & SIGNS ELECTRICITY & STRUCTURE VS VASOVAGAL

Vasovagal

- **Symptoms: Weakness, light-headedness, diaphoresis, visual blurring, headache, nausea, feeling warm or cold**
- **Signs: facial pallor, yawning, pupillary dilatation, and nervousness**
- **Falls without injury ***

Electrical & Structural

- **Tends to have no prodrome**
- **Falls will more often have injury**
- **Will see other “cardiac warning signs”**

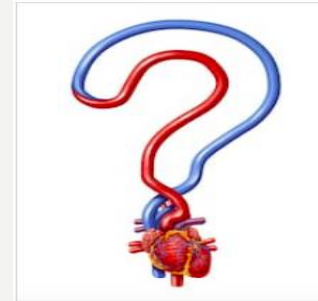


GUIDELINE UPDATES

AHA/ACC/HRS/ESC

AHA/ ACC/HRS 2017: KEY POINTS

- Detailed history & physical examination should be performed on syncopal patients.



- A resting 12-lead electrocardiogram (ECG).



- Cause and assessment for the short- and long-term risk.

BUT HOW?

- Hospital evaluation and treatment for a potentially serious medical condition.

http://www.onlinejacc.org/content/70/5/e39?_ga=2.182891942.1290994450.1565561701-664154920.1522721628

AHA/ACC/HRS 2017 CONT.

- Routine and comprehensive laboratory testing is not useful.
- Routine cardiac imaging is not useful unless a cardiac etiology is suspected.
- Vasovagal syncope is the most common cause.
 - Drug therapy is modest... so educate the patient on the diagnosis and prognosis.

AHA/ACC/HRS 2017 CONT.

- Orthostatic hypotension: neurogenic conditions, dehydration, or drugs. Treat the cause.
- Bradycardia, tachycardia, or in the presence of structural heart conditions: Guideline directed management and therapy (GDMT).

AHA/ACC/HRS 2017 CONT.

- Long QT syndrome (LQTS) and suspected arrhythmic syncope: Beta blocker and...
 - Consider ICD implantation.
- Catecholaminergic polymorphic ventricular tachycardia (CPVT): Beta Blocker and ...
 - Exercise restriction.



**KEEP
CALM**

AND

**TAKE YOUR
BETA BLOCKER**

AHA/ACC/HRS 2017 CONT.

- Arrhythmic etiology: Electrophysiologic study is reasonable.
- Athletes with syncope: Cardiovascular assessment by a specialist prior to resuming competitive sports.

EUROPEAN SOCIETY OF CARDIOLOGY



2009	2018
Contraindications to CSM	
Tilt testing: indication for syncope ^{23, 24, 105-109, 111-117}	
Tilt testing for educational purposes ¹¹⁹⁻¹²¹	
Tilt testing: diagnostic criteria ^{23, 24, 105-109, 111-117}	
Tilt testing for assessing therapy	
Holter for unexplained syncope ¹⁶²	
ECG monitoring: presyncope & asymptomatic arrhythmias	
Adenosine triphosphate test	
EPS-guided pacemaker: prolonged SNRT ²¹⁰⁻²¹²	
EPS-guided pacemaker: HV >70 ms ^{184, 214-217, 221}	
Empiric pacing in bifascicular block ^{217, 255, 344}	
Therapy of reflex syncope: PCM ^{119-121, 263, 264}	
Therapy of OH: PCM ³¹⁹	
Therapy of OH: abdominal binders ^{23, 320, 321}	
Therapy of OH: head-up tilt sleeping ^{104, 322, 323}	
Syncope & SVT/VT: AA drugs Expert opinion	

I

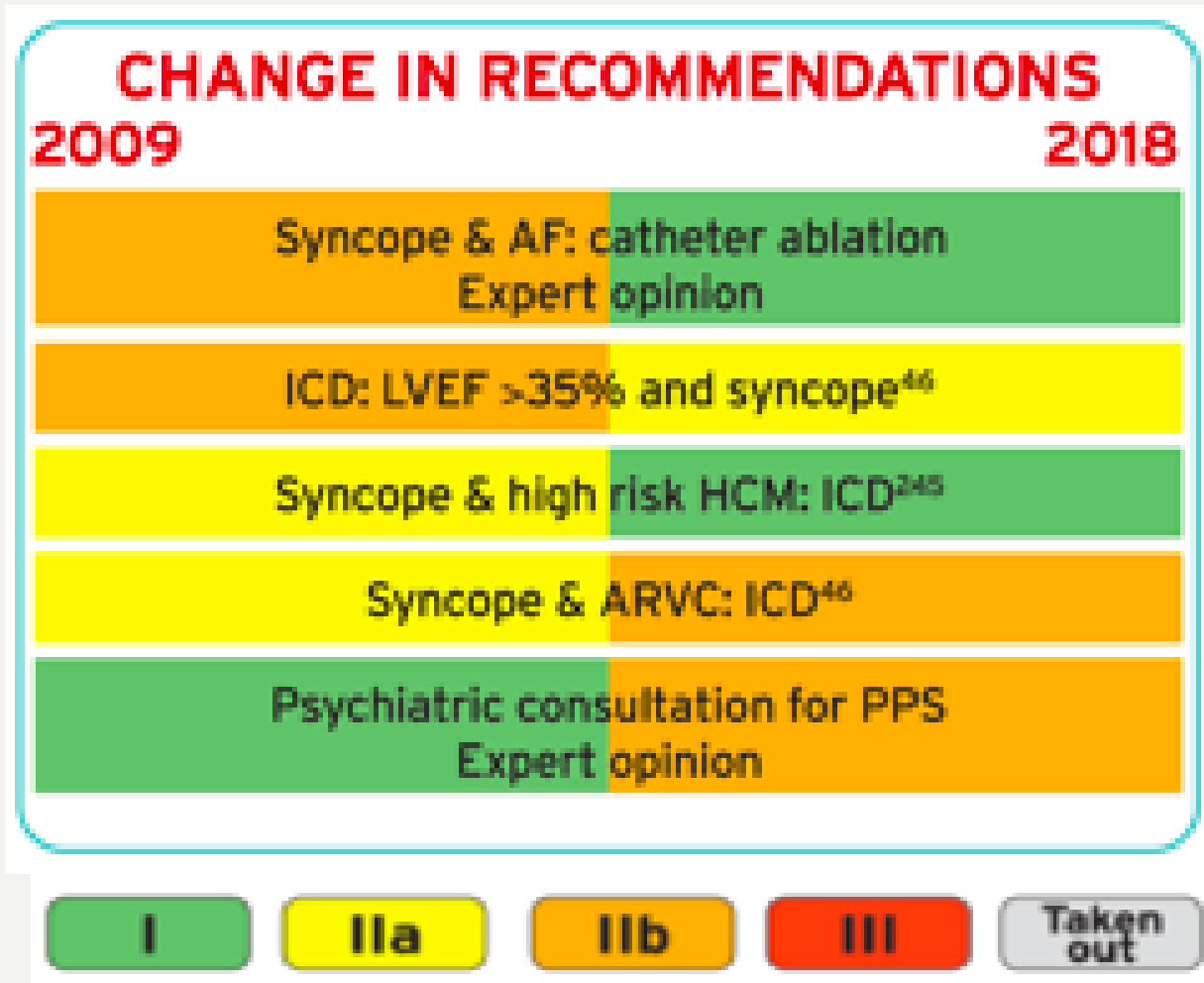
IIa

IIb

III

Taken out

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2018 NEW RECOMMENDATIONS (only major included)

Management of syncope in ED (section 4.1.2)

- Low-risk: discharge from ED
- High-risk: early intensive evaluation in ED, SU versus admission
- Neither high or low: observation in ED or in SU instead of being hospitalized

Video recording (section 4.2.5):

- Video recordings of spontaneous events

ILR indications (section 4.2.4.7):

- In patients with suspected unproven epilepsy
- In patients with unexplained falls

ILR indications (section 5.6):

- In patients with primary cardiomyopathy or inheritable arrhythmogenic disorders who are at low risk of sudden cardiac death, as alternative to ICD

I

IIa

IIb

III

Taken out

BUT HOW?



RISK STRATIFICATION TOOLS

NOW HOW!

SAN FRANCISCO SYNCOPES RULE (SFSR)

1. 684 patients
2. return hospital visit for a serious condition in 7 days.
3. A commonly mnemonic for the 5 variables is “**CHESS**”
Only need 1 to be considered positive!
4. Most common cause: cardiac dysrhythmia.
5. Common serious outcomes misclassified as low-risk were stroke and intracranial hemorrhage.
6. Validation studies failed to repeat the high sensitivity

CANADIAN SYNCOPE RISK STRATIFICATION (CSRS)

1. 4,030 patients! 9 variables.
2. Probability of serious adverse event including arrhythmia and death within the next 30-days.
3. If no serious conditions are detected, consider an out-of-hospital external cardiac monitor.
4. Medium or high-risk: evaluate for serious underlying conditions.
5. 6.7% of patients were classified as high-risk (score ≥ 4).

https://qxmd.com/calculate/calculator_383/canadian-syncope-risk-score-csrs



Search for a calculator...



SI ✓

Imperial

▶ GENERAL CALCULATORS

▶ ADDICTION MEDICINE

▶ ANESTHESIOLOGY

▶ CARDIAC SURGERY

▶ CARDIOLOGY

▶ CRITICAL CARE

▶ EMERGENCY

▶ ENDOCRINOLOGY

▶ GASTROENTEROLOGY

▶ GERIATRICS

▶ HEMATOLOGY

▶ INFECTIOUS DISEASE

▶ MEDICAL ADMINISTRATION

Canadian Syncope Risk Score (CSRS)

Estimate prognosis among patients presenting to emergency with syncope

Predisposition to Vasovagal Symptoms?

Triggered by being in a warm crowded place, prolonged standing, fear, emotion or pain.

Yes

No

History of Heart Disease?

Includes coronary or valvular heart disease, cardiomyopathy, congestive heart failure and non-sinus rhythm (electrocardiogram evidence during index visit or documented history of ventricular or atrial arrhythmias, or device implantation)

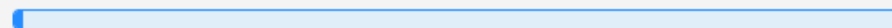
Yes

No

Any Systolic Pressure Reading <90 or >180 mm Hg

Includes blood pressure values from triage until disposition from the emergency department.

0/9 Questions Complete



Go to results

SAN FRANCISCO VS CANADA ... GO!

- **C**ongestive heart failure (history of).
- **H**ematocrit under 30%.
- **EKG** abnormal.
- **S**hortness of breath.
- **S**ystolic blood pressure less than 90 mmHg.

- Predisposition to vasovagal syncope
- Heart disease
- Any systolic pressure reading in the ED < 90 or > 180 mm Hg
- Troponin level above 99th percentile for the normal population
- Abnormal QRS axis (< -30° or > 100°)
- QRS duration longer than 130 ms,
- QTc interval longer than 480 ms
- ED diagnosis of cardiac syncope
- ED diagnosis of vasovagal syncope



**SELECTED
NEW
FINDINGS
&
NEW TRIALS**

**GET TO THE
PRACTICAL...**

VASOVAGAL AND P.O.T.S.

- Applied muscle tension (AMT) at strategic time points during donation reduces reported vasovagal rates.
- Emotional coping tactics: Postural tachycardia syndrome and vasovagal syncope pts **REDUCES** symptoms due to dysautonomia.

<https://www.ncbi.nlm.nih.gov/pubmed/30222861>

<https://www.ncbi.nlm.nih.gov/pubmed/29778242>

[https://www.autonomicneuroscience.com/article/S1566-0702\(17\)30256-4/abstract](https://www.autonomicneuroscience.com/article/S1566-0702(17)30256-4/abstract)



DEVICES

- POTS patients with unusually frequent syncope: consider implantable loop recorder (ILR) if other monitoring inconclusive.
- SPAIN STUDY: Closed-Loop Stimulation for Neuromediated Syncope (DDD-CLS) pacing reduced syncope burden & time to the first recurrence in select populations.

<https://www.ncbi.nlm.nih.gov/pubmed/28958328>

<https://www.ncbi.nlm.nih.gov/pubmed/29989177>

INTERESTINGLY...

- New Tilt Table Algorithm that focused on Heart rate and Heart Rate Variability reduced testing time.
- Citrus fruits induced swallow syncope with atrioventricular block or sinus arrest.




<https://www.ncbi.nlm.nih.gov/pubmed/28558089>

<https://www.ncbi.nlm.nih.gov/pubmed/29715516>


<https://www.ncbi.nlm.nih.gov/pubmed/29996999>






SHAMELESS PLUG: HTTPS://LEARN.HEART.ORG/ACTIVITY/6874813/DETAIL. ASPX




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Syncope Simulation

This activity offers a simulation designed to guide the learner in a thorough examination of the patient, identifying the underlying causes of syncope and initiating appropriate, guideline-based interventions based on the identified etiology of syncope.

Register

\$8.00
AHA Members Price

\$10.00
Non-members Price

Credits

0.75 Credits > Accreditation Council for Continuing Medical Education > AMA PRA Category 1 Credit™

0.75 Contact Hours > Accreditation Council for Pharmacy Education > ACPE

0 Credits > American Heart Association > AHA

0.75 Credits > Accreditation Council for Continuing Medical Education > Attendance Credit

Activity Information

Description

This activity offers a simulation designed to guide the learner in a thorough examination of the patient, identifying the underlying causes of syncope and initiating appropriate, guideline-based interventions based on the identified etiology of syncope.

Learning Objectives

At the completion of this online course, the learner will be able to:

- Review detailed patient history and ask targeted syncope questions during initial patient evaluation.
- Order appropriate diagnostic tests based on history and physical exam findings.
- Identify the underlying cause of syncope.
- Assess treatment options for prevention of recurrent syncope and for improving survival outcomes.
- Evaluate appropriate, guideline based interventions based on the identified etiology of syncope.

Type: Internet Activity (Enduring Material)

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