Goal
Guide clinicians in the initial evaluation and risk stratification in the management of syncope.

Key Points
- Syncope is a transient, spontaneously resolving, self-limited loss of consciousness associated with an inability to maintain postural tone
- Syncope is presumed to result from a transient drop in systemic arterial pressure to a level below the minimum needed to sustain cerebral blood flow (cerebral hypoperfusion)
- Syncope is a symptom with multiple possible underlying causes: reflex syncope (Neurally mediated 60-70%, orthostatic 10%, cardiac 10-20%)
- Pre-syncope or near syncope carries a similar prognosis
- Initial evaluation should include a detailed history, physical exam including orthostatic vital signs, and an EKG.

History
- Age
- Comorbidities with a focus on cardiovascular history and neurologic conditions
- Medication history:
  - Antihypertensive, antianginals, antidepressants, anti-arrhythmic, diuretics, QT-prolonging agents, and contraceptives
- Alcohol or illicit drug use
- Family history of:
  - Sudden cardiac death (ex. Unexplained death/drowning)
  - Painting
- Potential for pregnancy
- Pulmonary Embolism (PE) risk factors

Physical Examination
- Complete vital signs
- Orthostatic vital signs (obtain bilaterally)
  - Lying, sitting, standing and standing at 3 minutes
  - *Does not necessarily risk stratify as many high risk patients will also have positive orthostatic changes
- Detailed cardiac exam
- Neurologic exam
- Carotid sinus massage (avoid if stroke/TIA in the last 3 months or carotid bruit)
- Fluid assessment
- Signs of DVT
- Evidence of injury
- Consider rectal exam if concern for GI bleed

Syncope: Evaluation and Disposition

A detailed history and physical examination will give a clue to the etiology in 50% of all cases. A guide is provided below:

<table>
<thead>
<tr>
<th>Syncope Diagnostic Evaluation</th>
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</thead>
<tbody>
<tr>
<td>Position</td>
</tr>
<tr>
<td>----------------</td>
</tr>
<tr>
<td>(Reflex) Neurally Mediated</td>
</tr>
<tr>
<td>Situational</td>
</tr>
<tr>
<td>Carotid Sinus Hypersensitivity</td>
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<tr>
<td>Cardiac Cause</td>
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<tr>
<td>Orthostatic Hypotension</td>
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<tr>
<td>Seizure</td>
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</tbody>
</table>
## Diagnostic Evaluation

- Orthostatic vital signs with pulse oximetry
- EKG – NOTE: The following list is not exhaustive but is intended to guide the initial evaluation in the identification of EKG abnormalities warranting further investigation
  - Changes from previous EKGs
  - Ischemic changes
  - LVH
  - Ventricular pacing
  - Non-sinus rhythm: bradyarrhythmias, sinus pause, AV block, tachyarrhythmia, ventricular arrhythmia, atrial fibrillation
  - Abnormal interval measurements
  - Bundle branch block, Bifasicular block, any intraventricular conduction disturbance
  - Characteristic changes associated with Wolff-Parkinson-White, Brugada Syndrome, AVRT, HCM, or long QTc

Routine comprehensive testing is not recommended; however, if clinically indicated the following testing should be considered:

- Electrolytes, CBC, Glucose
- Troponin-I peak time (If chest pain, high index of suspicion)
- Toxicology
- D-dimer
- BNP
- Pregnancy test

### Additional Diagnostic Tests

(can be completed as inpatient or outpatient)

<table>
<thead>
<tr>
<th>Test</th>
<th>Symptoms</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Pulmonary Embolism</td>
<td>• Hypoxia</td>
<td>• EKG shows RH strain suggesting PE</td>
</tr>
<tr>
<td></td>
<td>• Unexplained dyspnea</td>
<td>• Wells Score validated</td>
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<tr>
<td></td>
<td>• Tachypnea</td>
<td></td>
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<tr>
<td></td>
<td>• Tachycardia</td>
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<td></td>
<td>• RHV</td>
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<tr>
<td>Echocardiogram</td>
<td>• External syncope</td>
<td>• High suspicion for underlying heart disease</td>
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<td></td>
<td>• Patient &lt; 40 and suspicion for hypertrophic cardiomyopathy or anomalous coronary artery</td>
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<tr>
<td>Exercise Stress Test</td>
<td>• Chest pain</td>
<td>• History of CAD or high risk for CAD</td>
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<td></td>
<td>• Syncope during / after exertion</td>
<td>• Screen for catecholaminergic polymorphic VT</td>
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<tr>
<td>Holter Monitor Loop Recorder (Internal or External) or EPB</td>
<td>• Frequent syncope</td>
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<td></td>
<td>• History of cardiac arrhythmia or unexplained syncope</td>
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</tr>
<tr>
<td>Tilt Table Test</td>
<td>• Syncope with no structural heart disease</td>
<td>European Society of Cardiology (ESC) Guidelines</td>
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<tr>
<td></td>
<td>• Recurrent (or single syncopal episode in high-risk patient)</td>
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</tbody>
</table>

### Additional Testing – NOTE Specific Indications

- Pacemaker Interrogation: May be indicated for patients with arrhythmias and no recent documented testing

### Additional Testing – NOTE These tests are generally NOT indicated in the workup for syncope

- CT Head: Rarely indicated for the evaluation of syncope

- Carotid Duplex Study: Vascular cause of syncope is rare

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Considerations in Determining Patient’s Appropriate Level of Care

<table>
<thead>
<tr>
<th>Outpatient</th>
<th>Observation</th>
<th>Admission</th>
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</thead>
<tbody>
<tr>
<td>• Consider outpatient management for patients with suspected reflex mediated (e.g., vasovagal syncope and the absence of a serious medical condition) - AHA Class 2a recommendation.</td>
<td>Emergency Department or in-hospital Observation is generally appropriate for a patient with consideration of cardiology consultation and with and with &gt; 1 of the following (AHA Class 2a):</td>
<td>Admission should be considered for patients with a serious medical diagnosis for further evaluation and treatment.</td>
</tr>
<tr>
<td>• Consider for younger patients with normal EKG and the absence of signs or symptoms of cardiovascular disease, short term risk features, or serous medical condition warranting admission (ACEP, ECS).</td>
<td>• &gt; 50 years of age</td>
<td>• Sustained or symptomatic VT, SVT, or other conduction system disease / deficit</td>
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<td></td>
<td>• Prior history of cardiac disease</td>
<td>• Pacemaker / ICD malfunction</td>
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<td></td>
<td>• Cardiac device without evidence of dysfunction</td>
<td>• Cardiac ischemia or tamponade</td>
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<td></td>
<td>• Concerning EKG findings</td>
<td>• Severe aortic stenosis / dissection</td>
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<td></td>
<td>• Family history of early SCD</td>
<td>• Acute HF</td>
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<td></td>
<td>• Symptoms not consistent with reflex-mediated syncope</td>
<td>• Pulmonary embolism</td>
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<tr>
<td></td>
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<td>• LV dysfunction</td>
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<td>• Severe GI bleeding</td>
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<td></td>
<td></td>
<td>• Persistent abnormal vital signs</td>
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<td></td>
<td></td>
<td>• Traumatic injury resulting from syncope</td>
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</tbody>
</table>

Examples of Appropriate Documentation Justifying Inpatient Level of Care

Patients who have been risk-stratified and the physician have determined the patient to be at high risk for an adverse event or sudden death because:

- Acute coronary syndrome identified
- Suspicion of imminently dangerous cause (e.g., subarachnoid hemorrhage, pulmonary embolism)
- Cardiac arrhythmias that require EP study
- Severe electrolyte abnormalities:
  - sodium <130 or >155
  - potassium <3 or > 6.5
  - calcium <7 or >14
  - phosphorus <1 or >10
  - magnesium <1
- The patient failed period of observation due to persistent symptoms or worsening condition

Risk Stratification

- Several clinical prediction scores are available but do not outperform informed clinical judgment and should not be used alone for risk stratification.
- Consider a patient’s risk for short term and long term complications
- The American Heart Association guideline for the Evaluation and Management of Patients with Syncope aids in risk stratification. See appropriate tables as listed:
  - Table 4 – Historical characteristics
  - Table 5 – Short and long-term risk factors
  - Table 6 – Syncope risk scores
  - Table 7 – Serious medical conditions

Disposition

- Consider a patient’s resources and feasibility to pursue additional work up as hospitalization has not been clearly shown to improve outcomes
- Even patients with suspected cardiac causes of syncope in the absence of a serious medical condition may be managed in the appropriate outpatient setting (AHA-class 2b).
Order Set

- OSU IP ED: Syncope triage protocol
- OSU IP ED: CDU/OBS syncope

References

- MS-DRG Code 780.2 Syncope and Collapse, Regulatory Audits Desk Reference, Chapter 2, Medical Necessity Complex Reviews.

Quality Measures

- Percent of patients who received an EKG
  - Observation
  - Emergency
- Percent of patients who received a head CT
  - Observation
  - Emergency
- Percent of patients discharged from the ED or Observation Unit with the diagnosis of Syncope and return within 14 days

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Guideline Reviewed by:

- Emergency Services Operations Council
- EP Quality Committee

Guideline Approved


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