**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, antiarrhythmic, 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

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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<tbody>
<tr>
<td></td>
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<tr>
<td>(Reflex) Neurally Mediated</td>
</tr>
<tr>
<td>Situational</td>
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<tr>
<td>Vasovagal</td>
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<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: bradycardias, sinus pause, AV block, tachycardia, ventricular arrhythmia, atrial fibrillation
  - Abnormal interval measurements
  - Bundle branch block, Bifascicular 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

<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>
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<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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<tr>
<td></td>
<td>RHV</td>
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<tr>
<td></td>
<td></td>
<td>High suspicion for underlying heart disease</td>
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<td></td>
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<td>Patient &lt; 40 and suspicion for hypertrophic cardiomyopathy or anomalous coronary artery</td>
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<td></td>
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<td>History of CAD or high risk for CAD</td>
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<tr>
<td></td>
<td></td>
<td>Screen for catecholaminergic polymorphic VT</td>
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<tr>
<td>Echocardiogram</td>
<td>External syncope</td>
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<tr>
<td>Exercise Stress Test</td>
<td>Chest pain</td>
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<td></td>
<td>Syncope during / after exertion</td>
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<tr>
<td>Holter Monitor Loop Recorder (Internal or External) or EPB</td>
<td>Frequent syncope</td>
<td>Determine the type of monitor</td>
</tr>
<tr>
<td></td>
<td>History of cardiac arrhythmia or unexplained syncope</td>
<td>Consider if family history or structural heart disease</td>
</tr>
<tr>
<td>Tilt Table Test</td>
<td>Syncope with no structural heart disease</td>
<td>European Society of Cardiology (ESC) Guidelines</td>
</tr>
<tr>
<td></td>
<td>Recurrent (or single syncopal episode in high-risk patient)</td>
<td></td>
</tr>
</tbody>
</table>

### Additional Testing – NOTE Specific Indications

- 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

- Concern for seizure
- Abnormal neurological findings
- Severe “thunder clap headache”
- Evidence of acute hydrocephalus

- Rarely indicated for the evaluation of syncope

- Suspicion of TIA / Stroke

- Vascular cause of syncope is rare

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Appropriate Level of Care

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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<tr>
<td></td>
<td>• Family history of early SCD</td>
<td>• Acute HF</td>
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<tr>
<td></td>
<td>• Symptoms not consistent with reflex-mediated syncope</td>
<td>• Pulmonary embolism</td>
</tr>
</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


Disclaimer: Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC's guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.