This CPM presents a model of care based on scientific evidence available at the time of publication. It is not a prescription for every physician or every patient, nor does it replace clinical judgment. All statements, protocols, and recommendations herein are viewed as transitory and iterative.

Although physicians are encouraged to follow the CPM to help focus on and measure quality, deviations are a means for discovering improvements in patient care and expanding the knowledge base.

If you have questions or concerns regarding this information, contact:

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This CPM is part of Presbyterian’s Clinical Care Model, a broad, enterprise-wide body of documentation covering PHS’ functions, programs, and care pathways, intended to build organizational acumen, facilitate cross-system collaboration, and accelerate our implementation of clinical initiatives.

Find all of PHS’ Care Model at www.PHSCareModel.org.

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**Syncope**

June 2017

This Clinical Practice Model (CPM) is designed for patients:

- Adults over the age of 18
- With suspected syncope
- Being seen in a PHS hospital/emergency department/urgent care/PMG clinic

This CPM offers guidance to the provider who is assessing whether a serious cause of syncope is present. In addition, it offers a practical risk-stratification approach to guide the management and disposition of syncope when there is an unclear diagnosis. Also, this CPM recommends an evidence-based evaluation algorithm for all patients and identifies low diagnostic yield tests, such as MRI (brain), CT (head), Carotid Doppler, and EEG (to be used only in the evaluation of neurologic syncope).

**Why Focus on Syncope?**

Syncope is a common complaint in the emergency department (ED), accounting for 1% to 1.5% of all ED visits, resulting in increased hospital admission rates and medical costs.

Syncope has many causes that are often difficult to determine. If patients presenting with syncope are evaluated according to current guidelines, only 10% to 15% would remain undiagnosed. Management of syncope remains a challenge, particularly in identifying patients with potentially serious causes. An evidence-based approach to syncope evaluation can help to reduce unnecessary admissions, extraneous testing, and help the initial clinical evaluation of patients with syncope.

**Care Pathway Roles and Responsibilities**

<table>
<thead>
<tr>
<th>Responsibility</th>
<th>Clinician</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment, diagnosis, care plan, and follow up</td>
<td>ED Provider, Urgent Care Provider, Hospitalist, and/or PCP</td>
</tr>
<tr>
<td>Treatment of unexplained, recurring syncope in patients at high-risk for an adverse event</td>
<td>Cardiologist</td>
</tr>
</tbody>
</table>

**Evidence/Resources**


Evaluation & Diagnosis

MRI (brain), CT (head), Carotid Doppler, and EEG should be ordered only if clinically indicated by the history and physical examination (neurologic deficits).

Targeted HPI for neurocardiogenic syncope
- Sense of warmth
- Nausea/vomiting
- Diaphoresis
- Palor (just prior or shortly after the event)

Triggers include:
- Strong physical or emotional stress
- Defecation/micturition
- Coughing
- Swallowing
- Prolonged standing in a warm environment

Syncope?
- Transient loss of consciousness
- Loss of postural tone
- Spontaneous return to baseline neurologic function requiring no resuscitative effort

Evaluate:
- Targeted HPI
- Physical exam
- Orthostatic vitals
- Medication review
- PMH
- ECG
- CBC
- Pregnancy test, if indicated

Differential diagnosis

Evaluate for:
- seizure, stroke, head trauma, other

Appropriate management

Syncope with clear cause

Serious cause?

Consider:
- Neurocardiogenic:
  - Vasomotor syncope
  - Carotid hypersensitivity
  - Situational syncope
  - Medication related
  - Orthostatic hypotension

Syncope

Consider:
- Cardiac syncope:
  - Arrhythmia
  - Myocardial infarction
  - Valvular heart disease
  - Pericardial effusion
  - Pulmonary embolism
  - Neurologic syncope:
    - Subarachnoid hemorrhage
    - Subclavian steal syndrome
    - Transient ischemic attack
  - Significant hemorrhage:
    - GI bleed
    - Trauma
    - Ruptured spleen
    - Ruptured ectopic pregnancy
    - Ruptured ovarian cyst

Admission

Treatment & follow up

Appropriate disposition

unexplained syncope

High risk?*

San Francisco Criteria:
- History of cardiac disease, especially congestive heart failure
- Hematocrit <30%
- Abnormal ECG (new ECG change from any source, any non-sinus rhythm on ECG or monitoring)
- Shortness of breath
- Low blood pressure (systolic <90 mmHg)

Single episode or recurrent?

Care setting:
Outpatient or ED?

Refer to Cardiology**

Echocardiogram and/or Cardiology evaluation
STAT**

Evaluation complete
Treatment & follow up

Monitor symptoms

Monitor symptoms

Appropriate disposition

*For more high-risk factors, see page 4.
**Cardiology appointments should be scheduled within 72 hours.
Evaluation & Testing

Diagnosis criteria

- Syncope is an abrupt and transient loss of consciousness caused by cerebral hypoperfusion.

Initial assessment

- For all patients presenting with syncope, evaluation includes a detailed history, physical examination, and electrocardiography.
  - The history should collect three key elements:
    1. Is the loss of consciousness attributable to syncope?
    2. Is there a history of cardiovascular disease?
    3. Are there clinical features to suggest a specific cause of syncope?
  - A targeted HPI assesses for neurocardiogenic syncope (see algorithm, page 2).
  - The physical exam should focus on:
    1. Trauma incurred from the syncopal event
    2. Initial vital signs; orthostatic vitals; and cardiac, pulmonary (evidence of congestive heart failure), abdominal, rectal, and skin/nail (anemia) signs
  - ECG is used to identify any ischemic, structural, or conduction abnormalities

- During evaluation, the cause of syncope often remains unclear and management should generally focus on risk stratification to differentiate among patients safe for discharge and those who require emergent investigation and in-hospital management.
  - Low-risk patients (i.e., those with symptoms consistent with vasovagal or orthostatic syncope, no history of heart disease, no family history of sudden cardiac death, normal electrocardiographic findings, unremarkable examination, and younger patients) with a single episode of syncope may be safely followed with no further intervention or treatment.
  - High-risk patients (see table, page 4) with cardiovascular or structural heart disease, history concerning for arrhythmia, abnormal electrocardiographic findings, or severe comorbidities should generally be admitted to the hospital for further evaluation.

- Laboratory testing and neuroimaging have a low diagnostic yield and should be ordered only if clinically indicated.

Further diagnostic testing

- Echocardiography is used to evaluate suspected structural abnormalities; for patients history of cardiac disease, abnormal ECG findings, or suspected significant valvular disease.
- Continuous cardiac monitoring is used to establish a correlation between symptoms and ECG findings; for patients with cardiovascular disease, abnormal baseline ECG findings, cardiac symptoms surrounding the syncopal event, and a family history of sudden cardiac death. Under certain circumstances, this monitoring is done in hospital; when appropriate, some patients can be monitored with a 24-hour Holter monitor or 30-day outpatient monitor.

Classification of Syncope

Neurally mediated (reflex)

- 45% of cases (most common)
- Can be vasovagal, situational, or secondary to carotid sinus hypersensitivity

Cardiac

- 20% cases
- Most often caused by an arrhythmia, and less often by a structural cardiac abnormality

Orthostatic

- 10% of cases
- Characterized by posturally induced hypotension, most often related to impaired increase in systemic vascular resistance
- Associated factors include medication effects, volume depletion, acute hemorrhage, and autonomic dysfunction
## Risk Factors for Syncope

<table>
<thead>
<tr>
<th>Characteristics of Syncope</th>
<th>HIGH RISK</th>
<th>LOW RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• During exertion</td>
<td>• Only while in standing position</td>
</tr>
<tr>
<td></td>
<td>• In supine position</td>
<td>• Standing from supine/ sitting position</td>
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<tr>
<td></td>
<td>• New onset of chest discomfort</td>
<td>• Nausea/ vomiting before syncope</td>
</tr>
<tr>
<td></td>
<td>• Palpitations before syncope</td>
<td>• Feeling of warmth before syncope</td>
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<tr>
<td></td>
<td>• Shortness of breath</td>
<td>• Triggered by painful/ emotionally distressing stimulus</td>
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<tr>
<td></td>
<td></td>
<td>• Triggered by cough/defecation/micturition</td>
</tr>
<tr>
<td>Characteristics of the Patient</td>
<td></td>
<td>Age &lt;50 years</td>
</tr>
<tr>
<td>ECG Features</td>
<td>• New (or previously unknown) left bundle branch block</td>
<td>Normal</td>
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<tr>
<td></td>
<td>• Bifascicular block + first degree AV block</td>
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<tr>
<td></td>
<td>• Brugada ECG pattern</td>
<td></td>
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<tr>
<td></td>
<td>• ECG changes consistent with acute ischemia</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Non-sinus rhythm (new)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Bifascicular block</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Prolonged QTc (&gt;450 ms)</td>
<td></td>
</tr>
<tr>
<td>Patient History</td>
<td>• Family history of sudden death</td>
<td>• Prolonged history (years) of syncope with the same characteristics of the current episode</td>
</tr>
<tr>
<td></td>
<td>• Congestive heart failure</td>
<td>• No history of cardiovascular disease</td>
</tr>
<tr>
<td></td>
<td>• Aortic stenosis</td>
<td></td>
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<tr>
<td></td>
<td>• Left ventricular outflow tract disease</td>
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<tr>
<td></td>
<td>• Dilated cardiomyopathy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Arrhythmogenic right ventricular cardiomyopathy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Left ventricular ejection fraction &lt;35%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Previously documented arrhythmia</td>
<td></td>
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<tr>
<td></td>
<td>• Coronary artery disease</td>
<td></td>
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<td></td>
<td>• Previous myocardial infarction</td>
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<td></td>
<td>• Pulmonary hypertension</td>
<td></td>
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<td></td>
<td>• Previous ICD implantation</td>
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<td></td>
<td>• Heart murmur</td>
<td></td>
</tr>
<tr>
<td>Symptoms, Signs, or Variables Associated with the Syncope Episode</td>
<td>• Anemia (Hb &lt;9 g/dL)</td>
<td>• Anemia (Hb &lt;9 g/dL)</td>
</tr>
<tr>
<td></td>
<td>• Lowest systolic blood pressure in the ED &lt;90 mmHg</td>
<td>• Lowest systolic blood pressure in the ED &lt;90 mmHg</td>
</tr>
<tr>
<td></td>
<td>• Sinus bradycardia (&lt;40 bpm)</td>
<td>• Sinus bradycardia (&lt;40 bpm)</td>
</tr>
</tbody>
</table>

## Patient Education and Support

### Patient Education

<table>
<thead>
<tr>
<th>Patient Goal</th>
<th>Key Message for Patient</th>
<th>Tools and Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Understand syncope.</td>
<td>• Fainting can be caused by many things; treatment will depend on the cause.</td>
<td>• Epic patient instructions&lt;br&gt;&lt;br&gt;<strong>Fainting: What You Should Know</strong></td>
</tr>
<tr>
<td></td>
<td>• Your doctor will ask you questions, examine you, and test your heart with an EKG to find out why you fainted. If these things are not enough to find the cause, you may need more tests, such as blood tests, a heart ultrasound, or heart monitoring.</td>
<td></td>
</tr>
</tbody>
</table>

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Clinical Definitions

Syncope

Syncope is an abrupt, transient loss of consciousness, associated with loss of postural tone, with spontaneous return to baseline neurologic function requiring no resuscitative efforts; caused by cerebral hypoperfusion.

Additional References

Clinical Practice Guidelines

- Approach to the adult patient with syncope in the emergency department (UpToDate) 2016
- Guidelines for the diagnosis and management of syncope (ESC) 2009

Additional Resources

- Syncope: Evaluation and Differential Diagnosis (AFP) 2017