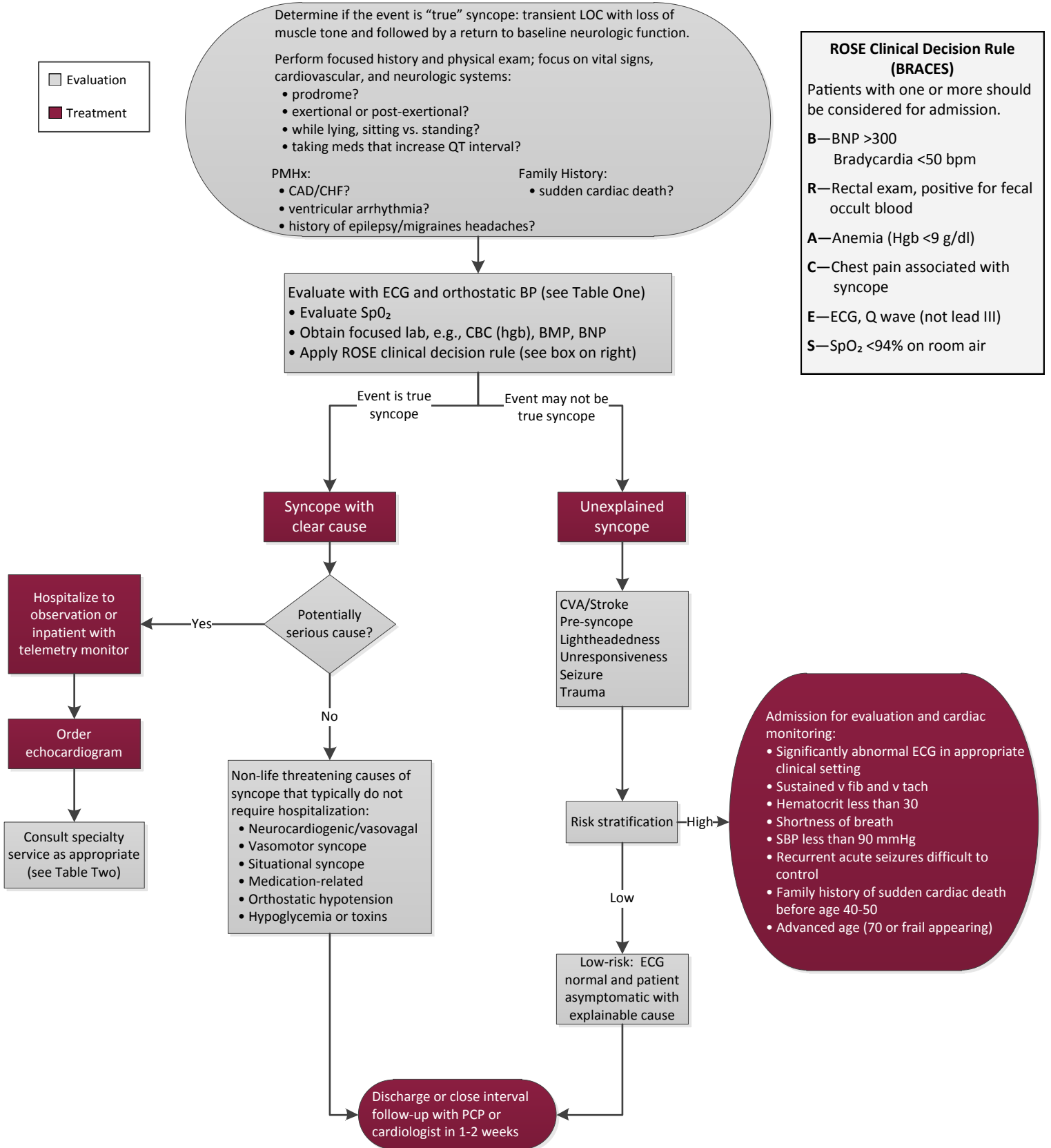


Syncope Clinical Guideline

Definition: Syncope is the term used to describe a temporary loss of consciousness (LOC) due to the sudden decline of blood flow to the brain. Often referred to as fainting or "passing out," syncope is most often a transient and benign condition, and the event will have no long-term significance. In some cases, syncope is a sign that a dangerous or even life-threatening underlying medical condition may be present. LOC associated with increased muscle tone is a neurologic (or sometimes psychiatric) event, not a cardiac one.



Quick Guide to Syncope

- Syncope is most often benign and self-limited
- The distribution of causes for syncope are as follows:
 - reflex (including neurally mediated and vasovagal): 58%
 - cardiac disease: 23%
 - neurologic or psychiatric disease: 1%
 - unexplained syncope: 18%
- Up to 40% of the population will experience at least one episode of TLOC (transient loss of consciousness) in their lifetime
- Patients age 70 and older are at a greater risk for syncope

Syncope is thought to be responsible for approximately 3% of emergency room visits and 2-6% of inpatient admissions each year.

Evaluation

Syncope is a common presenting complaint in a primary care setting, and at least 90% of the time reflects either neurocardiogenic syncope (NCS) or orthostatic hypotension (OH). More malignant etiologies are significantly less likely, although possible. The goal of the initial evaluation is to evaluate the patient for the common etiologies and exclude high risk features.

The patient's history and a physical examination are the most specific and sensitive ways to evaluate syncope. In up to 85% of patients, the determination of what caused the syncopal episode can be achieved with a thorough history and physical exam, including orthostatic blood pressures. Attention should be paid to both the description of syncope and to questioning about symptoms of either ischemic disease or heart failure.

A detailed account of the event must be obtained from the patient and/or witnesses of the event. This account should include the circumstances surrounding the episode, such as the precipitant factors, the activity in which the patient was involved prior to the event, and the patient's posture when it occurred. Activity prior to the event may give clues to the etiology of symptoms. Syncope may occur at rest, with a change of posture, during exertion, after exertion, or with specific activities such as shaving, coughing, voiding, or prolonged standing. Assess whether a patient was standing, sitting, or lying when the syncope occurred. Syncope while seated or lying down is more likely to be cardiac.

A medication history must be obtained in all patients with syncope, with special emphasis placed on cardiac and antihypertensive medications. Drugs commonly implicated in syncope include the following:

- agents that reduce blood pressure (e.g., antihypertensives, diuretics, nitrates)
- agents that affect cardiac output (e.g., beta blockers, digitalis, antiarrhythmics)
- agents that prolong the cardiac output (QT) interval (e.g., tricyclic antidepressants, phenothiazines, quinidine, amiodarone)
- agents that alter sensorium (including alcohol and analgesics with sedative properties)
- agents that alter serum electrolytes (especially diuretics)

Inquiry must be made into any personal or familial past medical history of cardiac disease. Patients with a history of myocardial infarction (MI), arrhythmia, structural cardiac defects, cardiomyopathies, or congestive heart failure (CHF) have a uniformly worse prognosis than other patient groups.

The following tests can be done to help determine the etiology of the syncope event:

- 12-lead ECG (electrocardiogram) testing
- Echocardiogram
- Oxygen saturation levels via pulse oximetry
- Basic metabolic panel (BMP) blood testing
- B-type natriuretic peptide (BNP) blood testing
- Complete blood count (CBC) blood testing

Basic labs including CBC and BMP are not necessary, if the presentation is of a single event with obvious etiology in a young and apparently healthy patient.

If the evaluation is characteristic of either neurocardiogenic syncope or orthostatic hypotension, the ECG is normal, and the patient does not have other high risk features such as exertional angina or signs and symptoms of heart failure, then no further testing is indicated. A diagnosis should be made of either NCS or OH (or both) and the patient treated accordingly.

If the ECG is abnormal, an echocardiogram should be obtained to exclude significant structural heart disease. If exertional angina is present, stress testing should be considered.

A patient with a normal ECG, near normal BNP, and no signs of ischemia or heart failure has an extremely low risk of ventricular fibrillation.

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(Evaluation continued)

Any patient presenting with syncope, pre-syncope, heart failure, atrial fibrillation, or a need for surgery with a pacemaker or ICD *in situ* who is being admitted and any patient with a pacemaker or ICD *in situ* who is being sent home, unless the etiology is obvious (orthostatic hypotension, hypoglycemia, etc.), should have the device interrogated. For patients with Medtronic or Boston Scientific devices, this should be done prior to leaving the ED via the Carelink Express or Latitude Consult system. For St. Jude or Biotronik Devices, have the vendor rep or device staff do it the next day.

Patients with one or more should be considered for admission (Rose Clinical Decision Rule – BRACES):

- B** — BNP >300 Bradycardia <50 bpm
- R** — Rectal exam, positive for fecal occult blood
- A** — Anemia (Hgb <9 g/dl)
- C** — Chest pain associated with syncope
- E** — ECG, Q wave (not lead III)
- S** — SpO₂<94% on room air

If signs or symptoms of heart failure are present, both echocardiography and an evaluation for ischemia (e.g., stress testing) should be considered.

If the clinical presentation is atypical for NCS/OH (for example, with minimal or no prodrome, occurrence while seated or supine, occurrence during exercise, or associated with significant injuries), or if the patient has a family history of early sudden death, or if the patient does not respond to appropriate initial therapy, echocardiography and ambulatory ECG should be considered. Note that 24-hour Holter monitoring has a very low yield and is not generally recommended for this indication; if ambulatory ECG is pursued, it should be with a 10- to 14-day patch monitor, 30-day looping event recorder, or implantable loop recorder, depending on the frequency of clinical events. Tilt testing can be considered, but has poor sensitivity and specificity and should not generally be a first line test.

If the clinical presentation is compatible with seizure (focal neurological signs, auras, tongue-biting, loss of bowel or bladder function, witnessed convulsions, prolonged postictal phase), then evaluation for seizure should occur as well. However, note that convulsions are not uncommon during genuine syncope; furthermore, true syncope and true seizure can co-exist in the same patient.

Treatment

Treatment is based upon the underlying cause of syncope and is directed at preventing recurrence and/or, in some cases, death. Medication and simple lifestyle modifications can often prevent reflex-related syncope events. If a cardiovascular or neurological cause is to blame, the provider should consider a referral to a specialist (see Table Two) to diagnose and treat the suspected condition.

Follow Up

If a patient is not considered high risk, discharge and close interval follow up with a PCP or specialist is recommended.

Table One: All patients with syncope require an ECG evaluation to look for signs of the following:

Ischemia or MI	Aortic stenosis
Arrhythmias	Left ventricular hypertrophy; hypertrophic cardiomyopathy
Prolonged QT	Wolff-Parkinson-White syndrome
Pre-excitation syndrome	Brugada syndrome (RBBB, ST elevation in V1-V3)
Pulmonary embolus - tachycardia - right strain or RBBB - T wave inversion in V1-V4 - S1Q3T3	Pericarditis; diffuse ST elevation or electrical alternans with pericardial tamponade; low voltage QRS complexes

Table Two: Symptoms or Conditions Indicating the Need for Consultation

Type of Consult	Indications
Cardiology	<ul style="list-style-type: none"> • Abnormal echo (LVEF <50% or more than trivial pericardial effusion, moderate to severe valvular disease) • Carotid sinus hypersensitivity • Sinus rate less than 50 while awake • Pauses greater than 3 seconds • Second or third degree AV block • LBBB or bifascicular block • Ventricular fibrillation or nonsustained V-tach (syncope is abrupt and unexplained) • Family history of sudden cardiac arrest • Pre-excitation, long QT, or Brugada syndrome • Syncope occurs while supine or during exertion • Readmission for syncope • Implantable cardiac device
Neurology	<ul style="list-style-type: none"> • Focal neurologic findings • CVA vs transient ischemic attack • Orthostatic hypotension unresponsive to volume/meds • Neurogenic syncope
Pulmonologist/Critical Care Physician	<ul style="list-style-type: none"> • Pulmonary embolism
Cardiothoracic	<ul style="list-style-type: none"> • Subclavian steal syndrome • Atrial myxoma
Neurosurgical	<ul style="list-style-type: none"> • Intracranial hemorrhage
Surgery	<ul style="list-style-type: none"> • Significant hemorrhage • Associated trauma • Ruptured spleen • Ruptured ovarian cyst
Gastroenterologist	<ul style="list-style-type: none"> • GI bleed

Table Three: ICD-10 Diagnosis Codes

ICD 10 Codes	Description
R55	Syncope and collapse, unspecified -vasovagal -blackout
R40.20	Syncope, unconscious unspecified
G90.01	Carotid sinus syncope
T67.1XXA	Heat syncope, initial encounter
T67.1XXD	Heat syncope, subsequent encounter
T67.1xxs	Heat syncope, sequela
I95.1	Orthostatic hypotension

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This clinical guideline outlines the recommendations of Mount Carmel Health Partners for this medical condition and is based upon the referenced best practices. It is not intended to serve as a substitute for professional medical judgment in the diagnosis and treatment of a particular patient. Decisions regarding care are subject to individual consideration and should be made by the patient and treating physician in concert.



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