

CT Children's CLASP Guideline

Palpitations

INTRODUCTION

Palpitations are a subjective sensation of forceful, rapid, or irregular heart beats. In one study, palpitations accounted for 7 in 10,000 pediatric ED visits. Patients and families often present with high levels of concern. The etiology of palpitations is most commonly due to benign physiologic causes such as anxiety, fear, exercise or fever. Nonetheless, it is important to assess for less common pathologic causes including abnormal rhythms as an isolated problem or in association with an underlying syndrome or structural heart defect *See Appendix C (Cardiac Causes of Palpitations)*. In the previously mentioned study, 13.5% of patients were found to have an arrhythmia, with SVT being the most common. The initial evaluation of palpitations should focus on distinguishing palpitations due to benign physiologic causes from palpitations caused by an arrhythmia with or without underlying heart disease.

INITIAL EVALUATION AND MANAGEMENT

INITIAL EVALUATION:

- Obtain a complete and targeted history
 - When did symptoms start?
 - Has heart rate been obtained during episode? If so, what was it?
 - Duration of episodes
 - Frequency of symptoms
 - Offset of episodes (gradual vs abrupt)
 - Circumstances (e.g., hypoglycemia, occur with exercise, any alleviating factors – bearing down or coughing)
 - Associated symptoms at the onset (e.g., dyspnea, syncope, dizziness, fatigue, chest pain)
- Assess for non-cardiac causes of palpitations *See Appendix B (Non-Cardiac Causes of Palpitations)*
- Past Medical History *See Concerning Past Medical History in Appendix A*
- Family History *See Concerning Family History in Appendix A*
- Physical exam *See Concerning Physical Exam in Appendix A*

INITIAL MANAGEMENT:

- Obtain standard 12 lead ECG for every patient.
 - ECGs can be obtained at CT Children's main campus and satellite locations daily (Hartford, Danbury, Glastonbury, Shelton). To schedule call (860) 545-9400.
 - Locally obtained ECGs are frequently sent to CT Children's Pediatric Cardiology for interpretation.
- For palpitations without concerning history or abnormal cardiac exam *Appendix A (Red Flags)*, **AND** normal ECG, provide family with reassurance.
- For symptoms of autonomic dysfunction, vasovagal presyncope/syncope, refer to **Syncope** guideline.
- For new murmurs, refer to **CLASP Cardiac Murmurs Tool**.

WHEN TO REFER

- For patients presenting with concerning history, abnormal cardiac exam or abnormal ECG, refer to Pediatric Cardiology.
- For patients presenting with heart rate >190 bpm or are currently hemodynamically unstable, send emergently to ED via EMS.

HOW TO REFER	Referral to Cardiology via CT Children’s One Call Access Center Phone: 833.733.7669 Fax: 833.226.2329 Information to be included with the referral: <ul style="list-style-type: none"> ▪ Last visit note with relevant findings on history and physical exam ▪ ECG ▪ Blood pressure
WHAT TO EXPECT	What to expect from CT Children’s Visit: Further testing may be performed including: <ul style="list-style-type: none"> ▪ Echocardiography ▪ Holter monitoring ▪ Exercise stress test ▪ Electrophysiologic testing

APPENDIX A: Red Flags

	Red Flags
Concerning Characteristics	<ul style="list-style-type: none"> ▪ Associated with sustained tachycardia, especially >190 bpm ▪ Associated with hemodynamic instability ▪ Associated with syncope ▪ Alleviated by Valsalva maneuvers (bearing down, coughing) ▪ Symptoms of heart failure (dyspnea, orthopnea)
Concerning Past Medical History	<ul style="list-style-type: none"> ▪ Congenital or acquired heart disease ▪ Primary electrical heart disease ▪ Use of stimulants or pro-arrhythmic medications or substances
Concerning Family History	<ul style="list-style-type: none"> ▪ Palpitations associated with arrhythmia ▪ Cardiomyopathy, dilated and hypertrophic ▪ Sudden cardiac death ▪ Syncope ▪ Arrhythmias ▪ Structural heart disease ▪ Implantable defibrillator or pacemaker ▪ Bilateral sensorineural hearing loss ▪ Long QT syndrome, Brugada syndrome, or other channelopathy
Concerning Physical Exam	<ul style="list-style-type: none"> ▪ Irregularly irregular heart rate ▪ Non-innocent murmurs ▪ Clicks, rubs, gallops ▪ Displaced PMI ▪ Signs of heart failure (edema, enlarged liver, JVD, cardiomegaly)

APPENDIX B: Non-Cardiac Causes of Palpitations

Non-Cardiac Causes of Palpitations

- Fever
- Dehydration
- Anemia
- Thyroid disorder
- Electrolyte imbalance, hypoglycemia
- Anxiety (Refer to **Anxiety and Depression** CLASP guideline)
- Autonomic lability/dysfunction, POTS, vasovagal symptoms
- Medications (including beta-agonists (inhalers), OTC cold medications, stimulants)
- Caffeine use (including energy drinks)
- Alcohol use
- Illicit drugs
- Neoplasm (pheochromocytoma)

APPENDIX C: Cardiac Causes of Palpitations

Cardiac Causes of Palpitations

- Sinus tachycardia
- Premature atrial and ventricular contractions
- Supraventricular tachycardia (including Wolff-Parkinson-White)
- Atrial flutter and fibrillation
- Ectopic atrial tachycardia
- Junctional tachycardia
- Ventricular tachycardia [including catecholaminergic polymorphic ventricular tachycardia (CPVT) and arrhythmogenic right ventricular dysplasia (ARVD)]
- Cardiomyopathy (Dilated or Hypertrophic)
- Myocarditis
- Pericardial effusion
- Structural heart disease (congenital or acquired)