



# Characteristics of Pediatric Emergency Department Patients with Suspected Arrhythmias

Zachary Weber MD<sup>1</sup>, Marc Austin Skiles<sup>2</sup>, Xiao Zhang PhD<sup>1</sup>,  
John Hokanson MD, Kathleen Maginot MD<sup>1</sup>

University of Wisconsin School of Medicine and Public Health<sup>2</sup>, Department of Pediatrics<sup>1</sup>

## BACKGROUND

Arrhythmias are common concerns in the pediatric emergency department, yet little is known about how best to evaluate patients with a concern of an arrhythmia and how often an arrhythmia is confirmed when suspected. We set out to evaluate the nature of pediatric emergency room evaluations for possible arrhythmias.

## METHODS

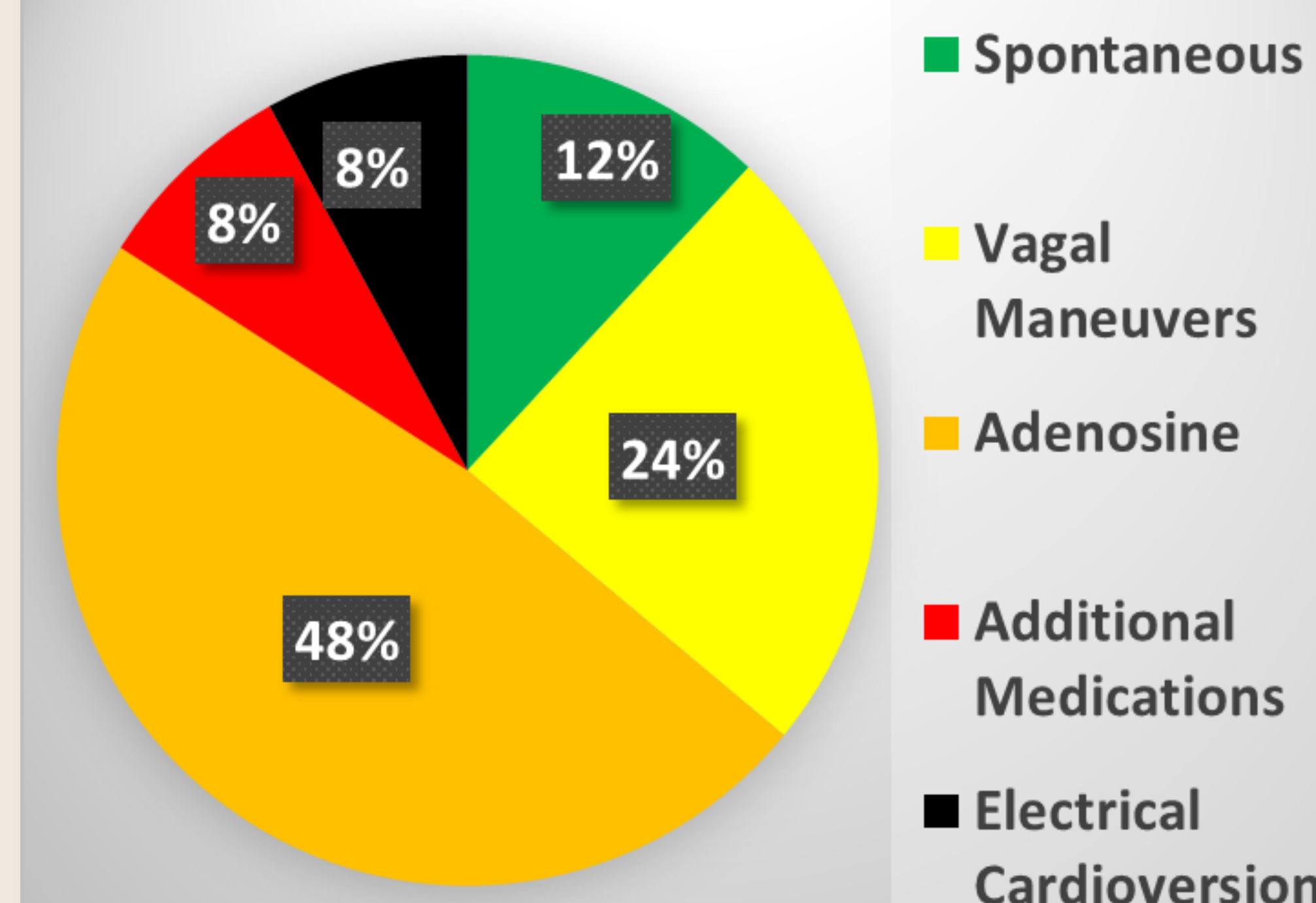
We performed a retrospective chart review of all pediatric patients seen in the AFCH emergency room between May 2011 and December 2020. Inclusion criteria were age 0-17, electrocardiogram (ECG) performed as part of evaluation, and clinical suspicion of an arrhythmia on presentation. We determined the demographics, presenting concern, laboratory tests performed, ECG results, and final diagnosis. We also evaluated the management of supraventricular tachycardia and the rate of hospital admission.

An arrhythmia is a common concern in the pediatric emergency department. An arrhythmia was confirmed in an important minority of evaluations with SVT being the most common pathologic rhythm.

## RESULTS

ED Visits		Electrocardiographic Diagnoses	
ED Visits	201		
Patients	177	Supraventricular Tachycardia	28
Age in years (SD)	10.24 (6)	Atrial Fibrillation	4
Prior Arrhythmia Dx	51	Atrial Flutter	1
Congenital Heart Disease	26	Ventricular Tachycardia	1
		Ventricular Fibrillation	1
Chief Concern on Arrival		Complete Heart Block	1
Racing Heart	72	Any abnormality on ECG	123
Palpitations	70		
Arrhythmia	18	Any Admission	56
		Arrhythmia Admission	14
		Cardiology Follow-up	89

## Mechanism of SVT Cardioversion



## CONCLUSIONS

Arrhythmias were documented in an important number of pediatric emergency room visits when a heart rhythm concern was the chief concern on arrival.

**Prior diagnoses of an arrhythmia or congenital heart disease were common.**

Supraventricular tachycardia was arrhythmia the most commonly identified and although it occasionally resolved spontaneously and could be treated with vagal maneuvers in many cases, some form of medical intervention was needed in nearly two thirds of the time.

**Addition analysis will help to identify those patients most likely to have an identified arrhythmia, those tests most likely to aid in diagnosis and those patients most likely to require hospitalization for additional treatment.**