

# Interpretation of an ECG Strip

## Step 1: Heart Rate

- Bradycardia = rate of <60 bpm
- Normal = rate of 60-100 bpm
- Tachycardia = rate of >100-160 bpm

Where its coming from:

- Sinus; SA node
- Atrial; SA node fails, impulse comes from the atria (internodal or the AV node)
- Ventricular; SA node or AV junction fails, ventricles will shoulder responsibility of pacing the heart

## Step 2: Heart Rhythm

- Regular
- Irregular

## Step 3: P-Wave

- SA node fires, sends the electrical impulse outward to stimulate both atria and manifests as a P-wave.
- Approximately 0.10 seconds in length

## Step 4: PRI

- Time which impulse travels from the SA node to the atria and downward to the ventricles
- Normal length of the PRI is 0.12 to 0.20 second (3-5 small squares)

3 Questions to ask:

- 1. Is PRI greater than 0.20 seconds?
- 2. Is PRI less than 0.12 seconds?
- 3. Is the PRI's constant across the ECG strip?

## Step 5: QRS Complex

- Impulse from the Bundle of HIS throughout the ventricular muscles
- Measures less than 0.12 seconds or less than 3 small squares on the ECG paper

3 questions to ask:

- 1. Are QRS intervals greater than 0.12 second (wide)? If so, the complex may be ventricular in origin.
- 2. Are QRS intervals less than 0.12 seconds (narrow)? If so, the complex is most likely supraventricular in origin.
- 3. Are QRS complexes similar in appearance across the ECG strip?

## Sinus Rhythm



Rate: 60-100  
PRI: 0.12-0.20

P before each QRS? Yes  
All QRS look alike? Yes

P Uniform? Yes  
QRS Length: <0.12

## Sinus Brady



Rate: < 60  
PRI: 0.12-0.20

P before each QRS? Yes  
All QRS look alike? Yes

P Uniform? Yes  
QRS Length: <0.12

## Sinus Tach



Rate: 100-160  
PRI: 0.12-0.20

P before each QRS? Yes  
All QRS look alike? Yes

P Uniform? Yes  
QRS Length: <0.12

## A. Flutter



Rate: 250-300  
PRI: not measurable

P before each QRS? No  
All QRS look alike? Yes

P Uniform? N/A  
QRS Length: <0.12

## A. Fib

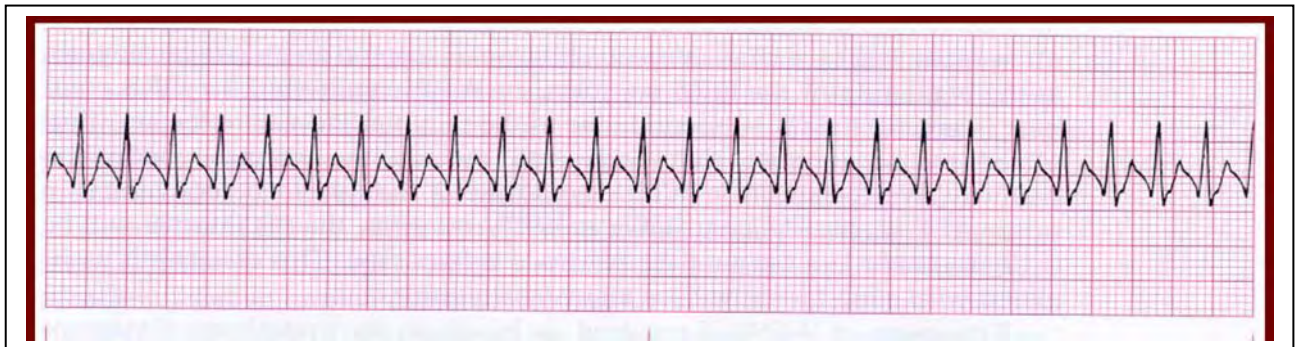


Rate: 350-400  
PRI: not discernable

P before each QRS? No  
All QRS look alike? Yes

P Uniform? N/A  
QRS Length: <0.12

## Supraventricular Tachycardia



Rate: 150-250  
PRI: not discernable

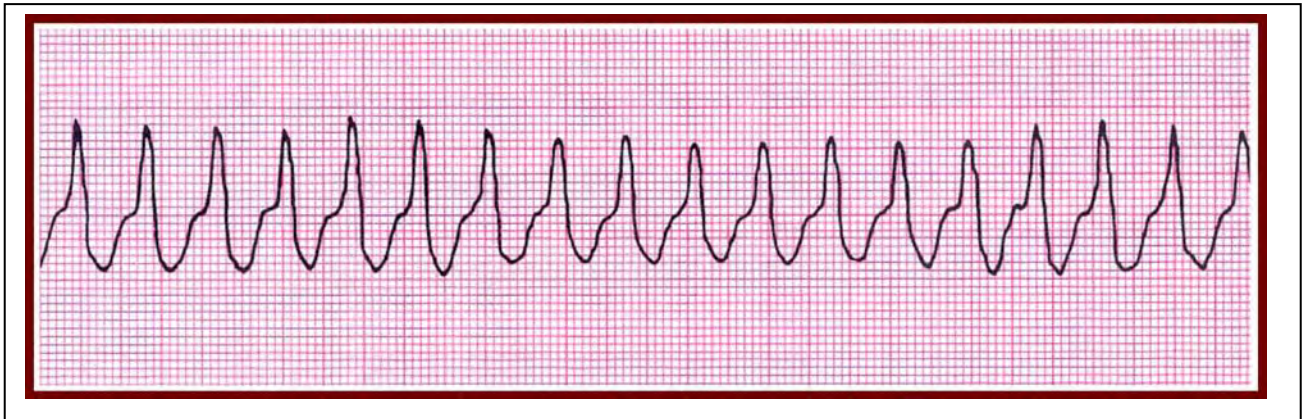
P before each QRS? Not discernable  
All QRS look alike? Yes

P Uniform? N/A  
QRS Length: <0.12

(PVCs)

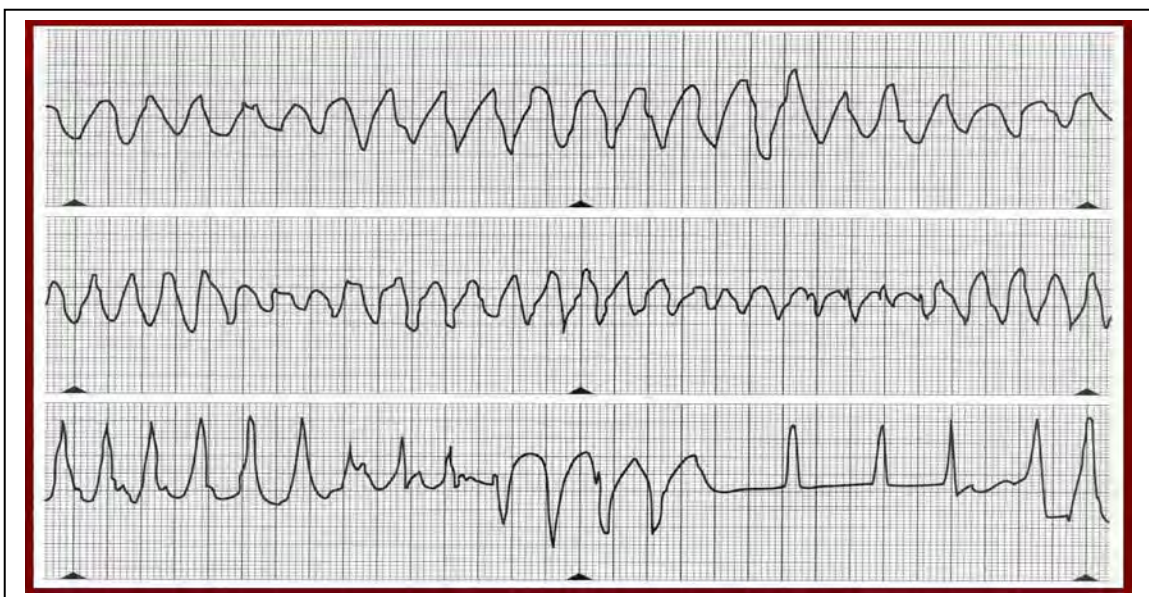


Ventricular Tachycardia

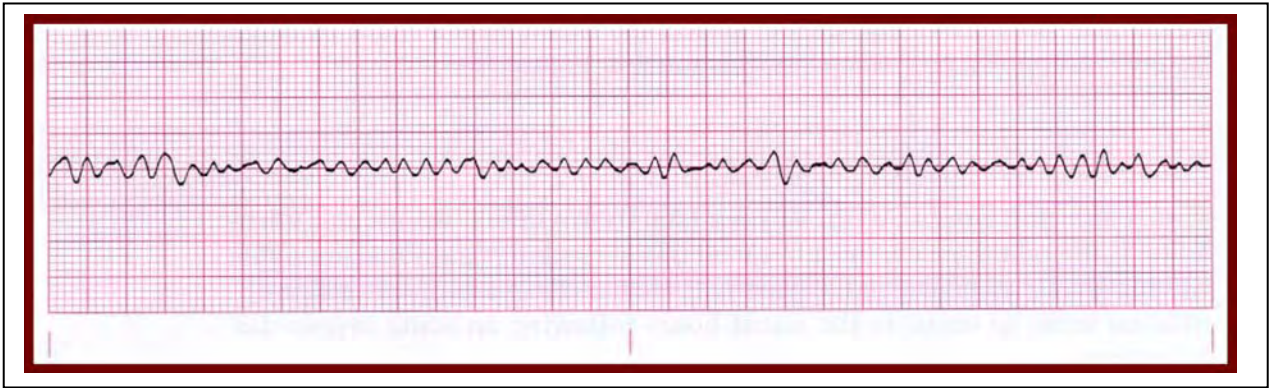


Torsades de Pointes

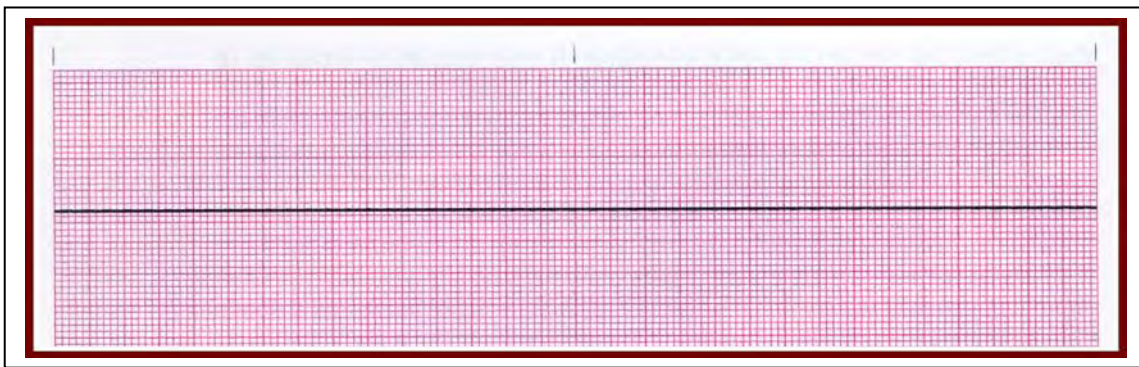
French term that signifies the “twisting of the points”.  
Similar to ventricular tachycardia



## Ventricular Fibrillation



## Asystole

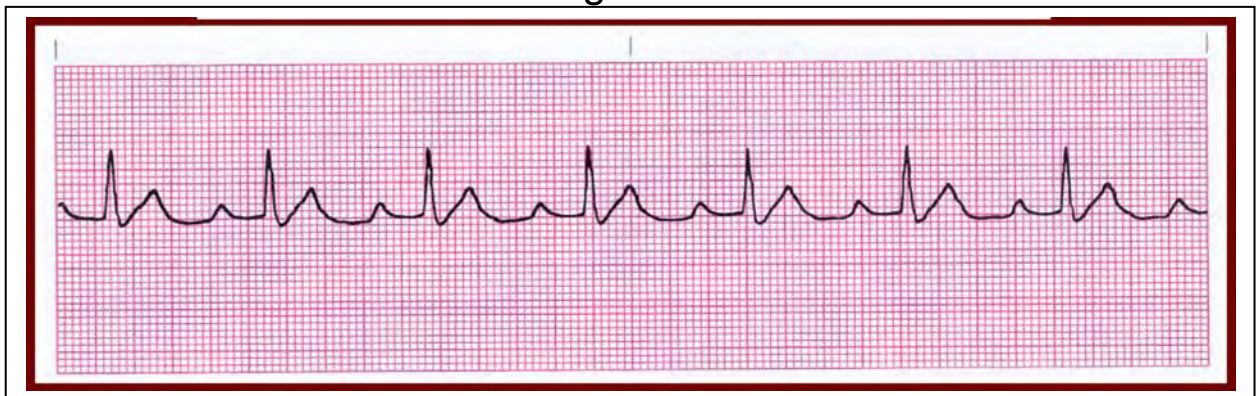


## Pulseless Electrical Activity (PEA)

The absence of a palpable pulse and myocardial muscle activity with the presence of organized electrical activity (excluding VT and VF) on cardiac monitor.

It is **not** an actual rhythm, it represents a clinical condition wherein the patient is clinically dead, despite the fact that some type of organized rhythm appears on the monitor.

## First Degree AV Block



Rate: variable

PRI: >0.20

P before each QRS? Yes

All QRS look alike? Yes

P Uniform? Yes

QRS Length: <0.12

## Second-Degree AV Block (Mobitz Type I) or Wenckebach



Rate: Variable    P before each QRS? Yes  
PRI: progressively longer, then drops    All QRS look alike? Yes

P Uniform? Yes  
QRS Length:  $<0.12$

## Second Degree AV Block (Mobitz Type II)



Rate: Variable    P before each QRS? Yes  
PRI?: Yes - Some have no QRS    All QRS look alike? Yes

P Uniform? Yes  
QRS Length:  $\geq 0.12$

## Third Degree AV Block (Complete)



Rate: Variable    P before each QRS? No relationship    P Uniform? Yes  
PRI?: Variable - No pattern    All QRS look alike? Yes    QRS Length: