# Basic Rhythm Interpretation

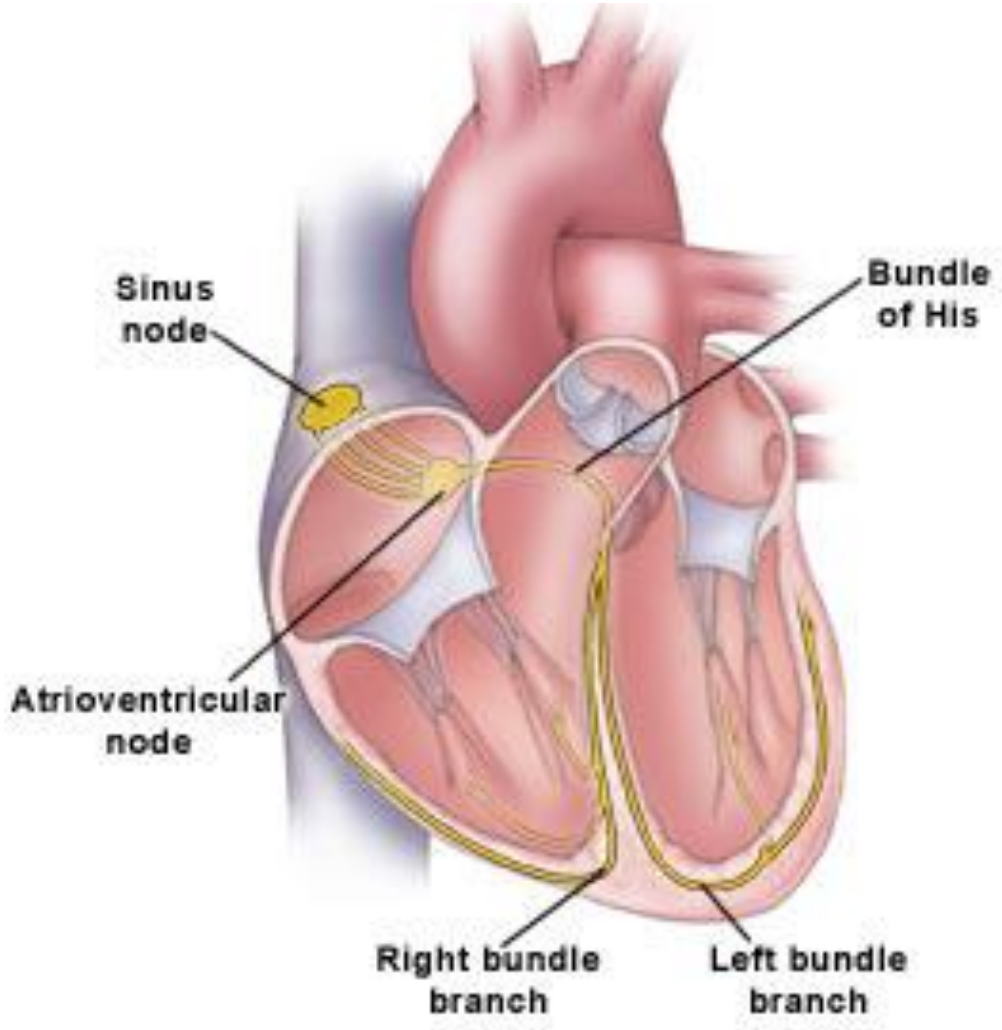
# Learning Objectives:

- **By the end of this learning activity, the learner will be able to:**
  - *Interpret basic cardiac rhythms.*
  - *Initiate appropriate interventions related to cardiac arrhythmias.*

# Outline of Course:

- Normal Conduction System of Heart
- Anatomy of a Rhythm Strip
- EKG Breakdown
- Steps in Rhythm Interpretation
- Tour of Basic Rhythms

# Conduction of the Heart



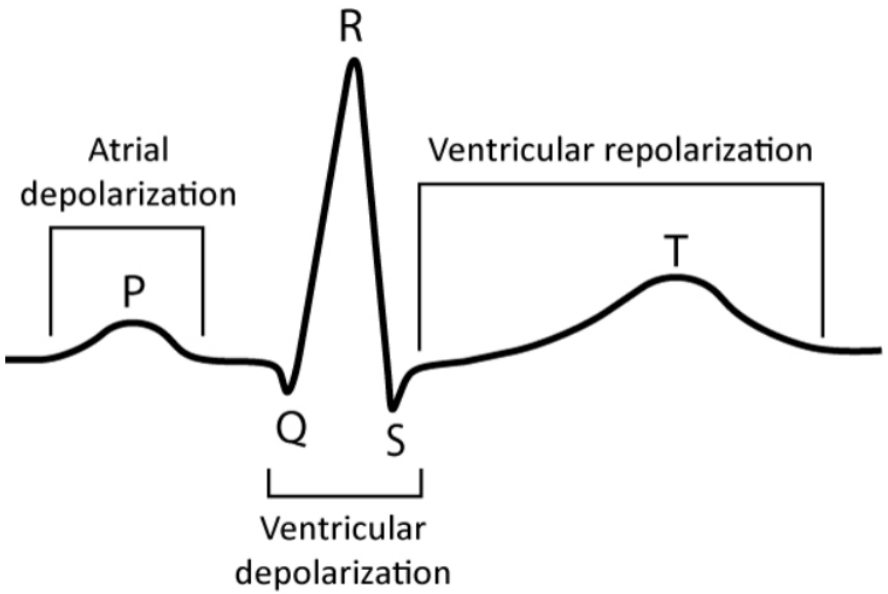

**Sinus Node**– normal pacemaker of the heart

**AV Node**– Slows conduction down to allow for ventricle filling

**Bundle of His**– **Right/Left Bundle branches**– carries conduction to right/left ventricles

**Purkinje Fibers**– carries impulse into ventricular muscle cells

# EKG Breakdown



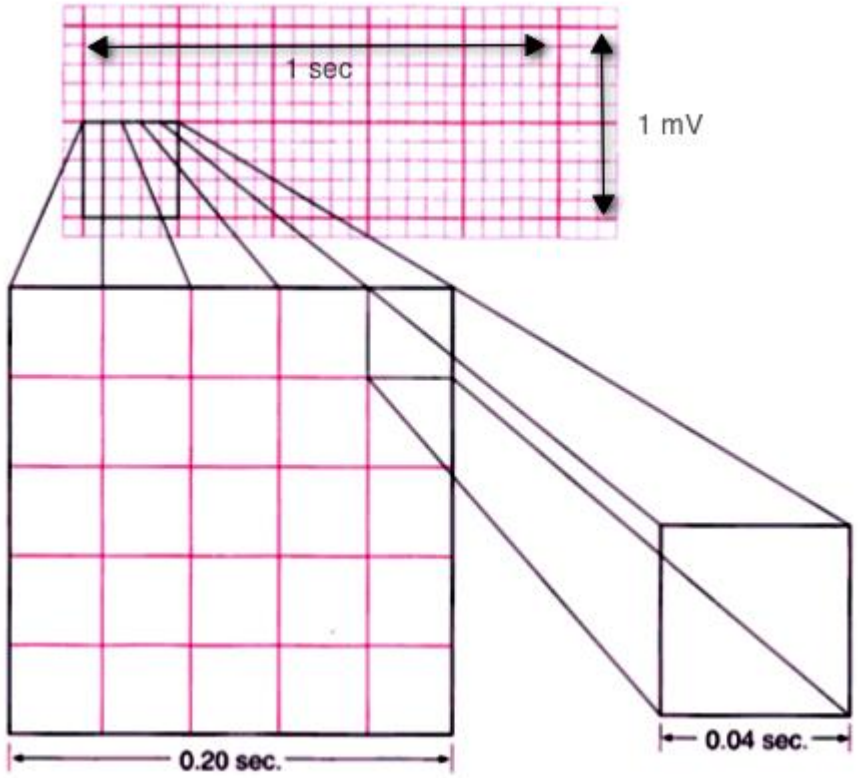

**Atrial Depolarization:** P-wave
- Impulse through the atria

**Atrial Repolarization:** Inside QRS

**Ventricular Depolarization:** QRS
- Impulse through each ventricle

**Ventricular Repolarization:** T-wave
- Ventricles return to resting state

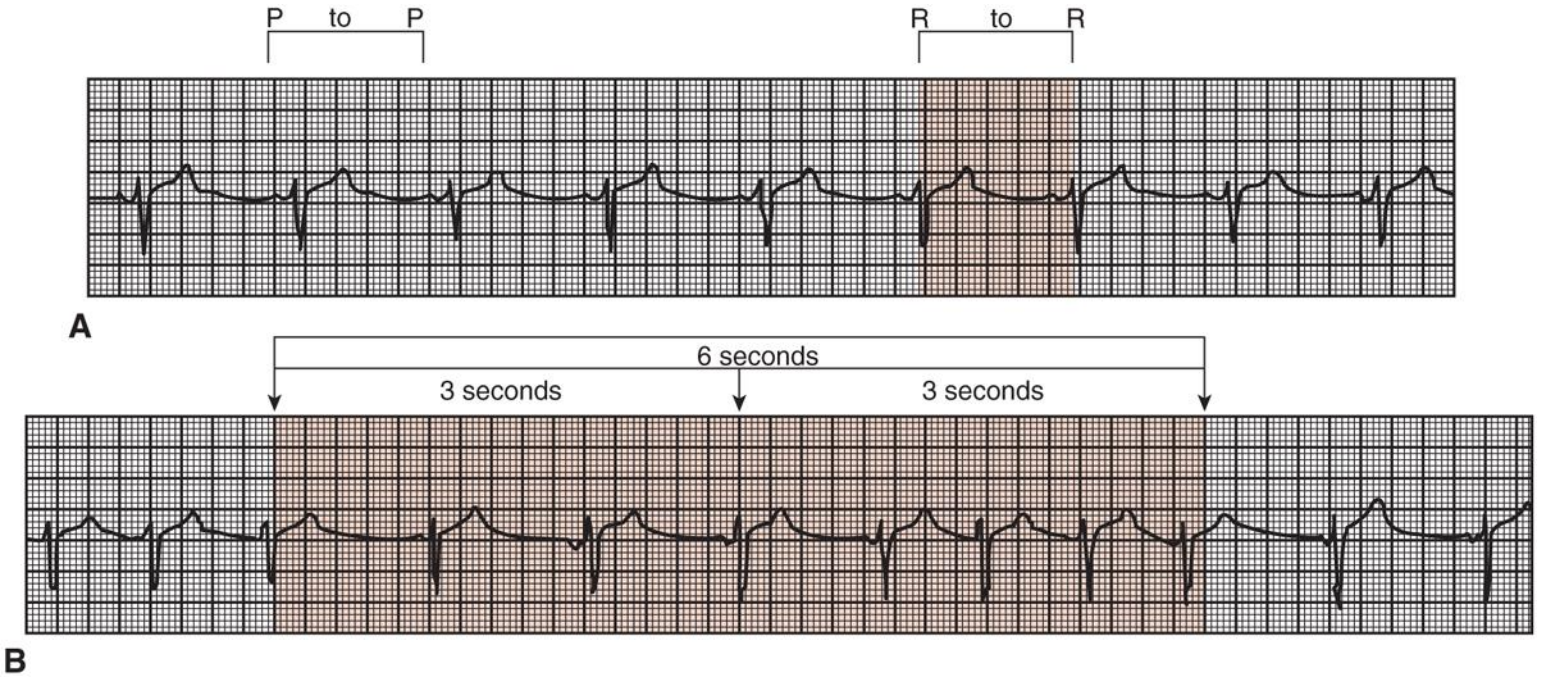
# Boxes on the Grid



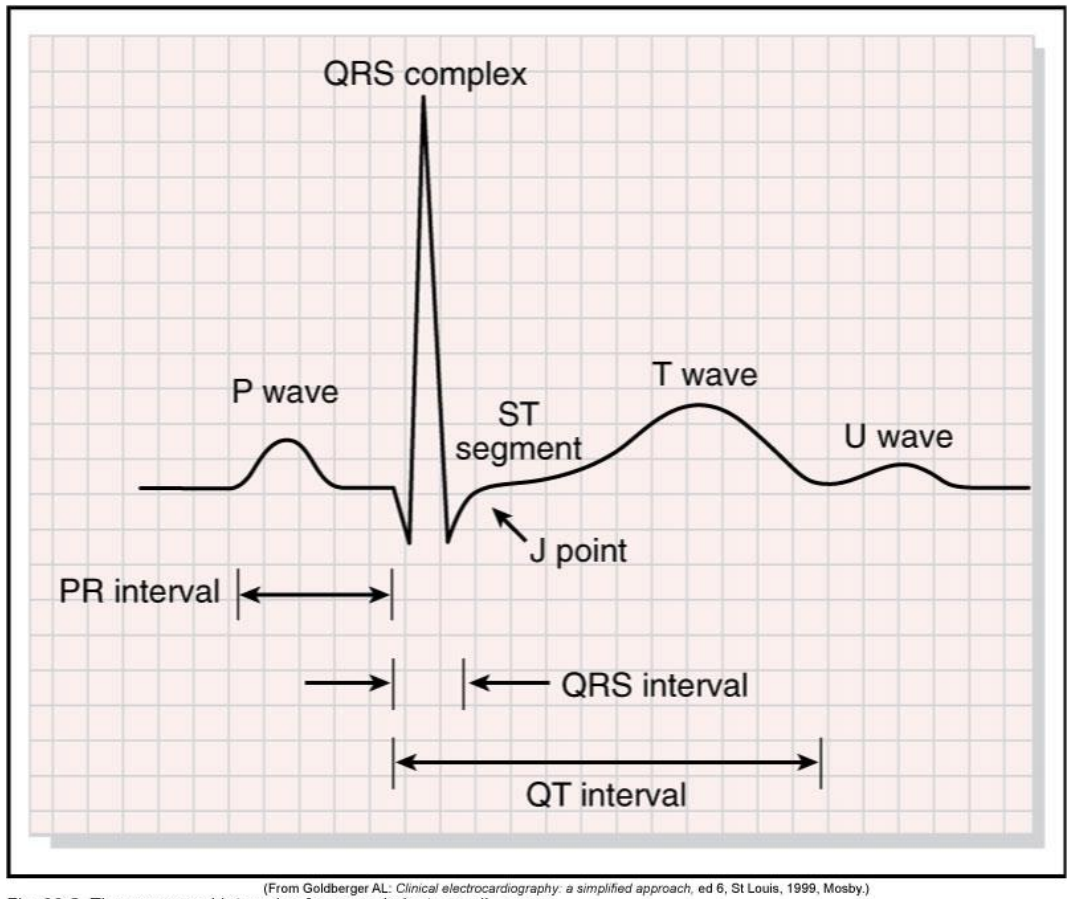
# Steps in Rhythm Interpretation

- 1) Rate
- 2) Regularity
- 3) P-wave for each QRS
- 4) PRI within normal parameters
- 5) QRS- wide or narrow
- 6) ST segment
- 7) Interpret
- 8) Treatment or follow-up needed

# Rate Determination & Regularity



# Anatomy of Rhythm Strip




(From Goldberger AL: *Clinical electrocardiography: a simplified approach*, ed 6, St Louis, 1999, Mosby.)
Fig. 22-5. The waves and intervals of a normal electrocardiogram.

P-wave for every QRS

**PRI:** .12-.20 seconds
**QRS:** .04-.12 seconds
**ST Segment:** Return to isoelectric line

Findings: Consider abnormalities & interpret rhythm

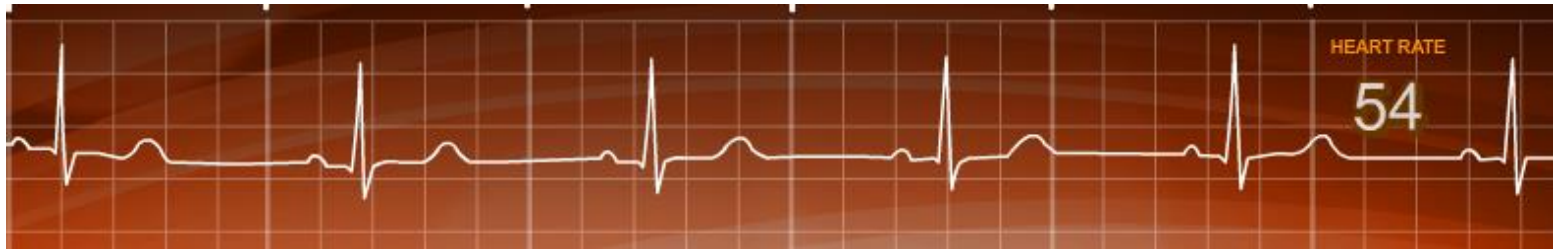
Determine need for further intervention

# Sinus Rhythm: *Start w/ Normal*

**SR:** HR 60-100 BPM

- Stable or Unstable
- Intervention Needed ?

# Sinus Bradycardia (SB)




**SB:** HR <60 BPM

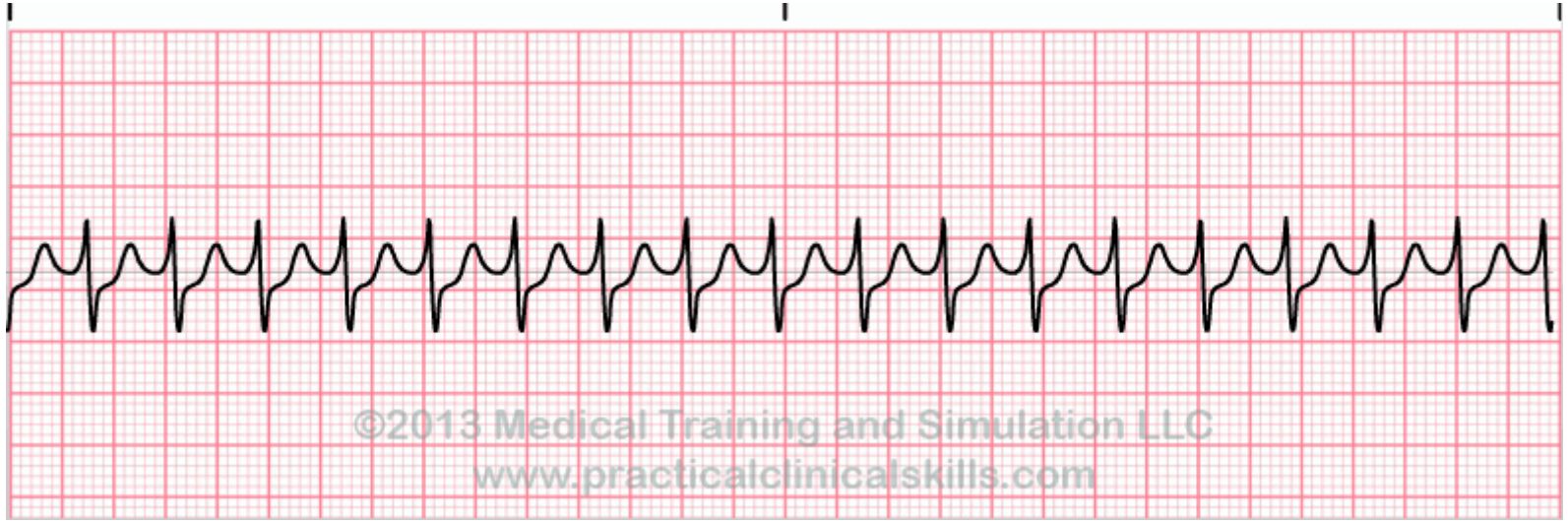
- Stable or Unstable
- Intervention Needed ?

# Sinus Tachycardia (ST)


**ST:** HR >100 BMP

- Stable or Unstable
- Intervention Needed ?
- Possible Causes ?

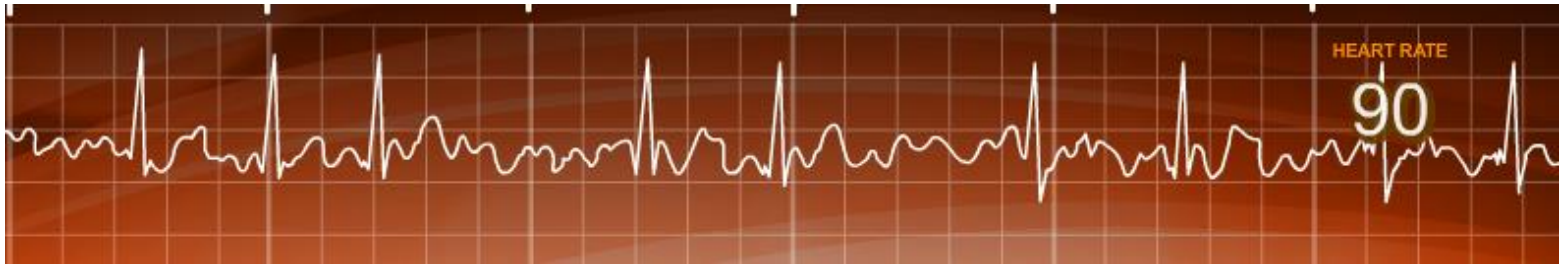
# Supraventricular Tachycardia (SVT)




**SVT:** HR >160 BPM

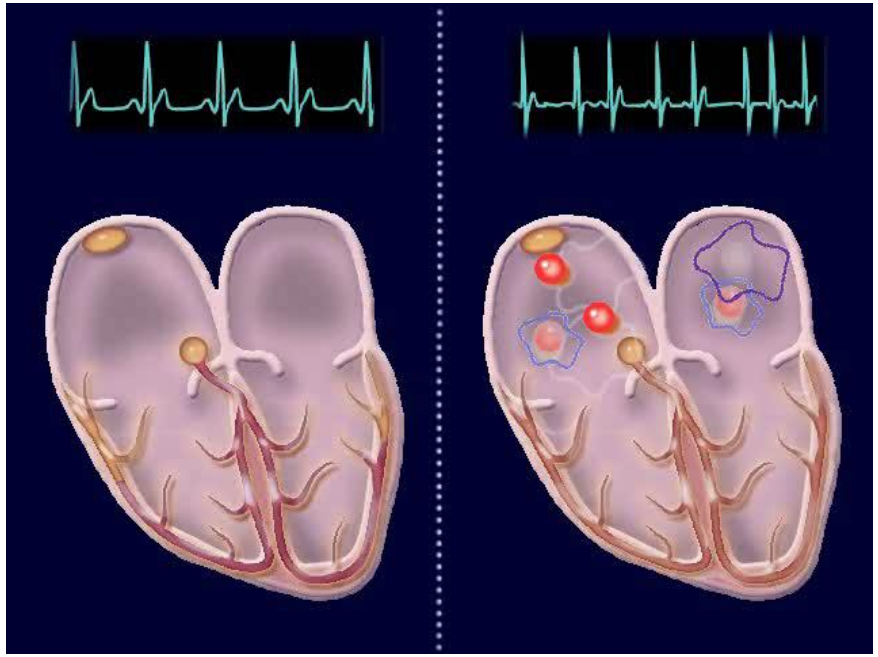
- Stable or Unstable
- Intervention Needed ?

# Atrial Fibrillation (A Fib)



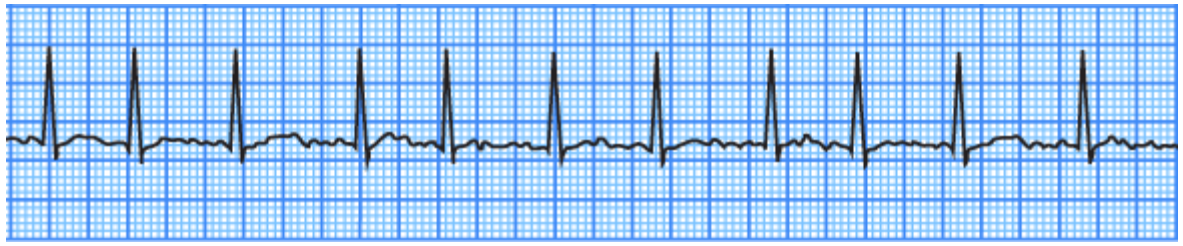

**A Fib:** No P-wave, irregular

- Atrium & Ventricles beating at different rates
- Atrium isn't completing full beats
- Risks for clot formation



# Uncontrolled vs. Controlled Atrial Fibrillation

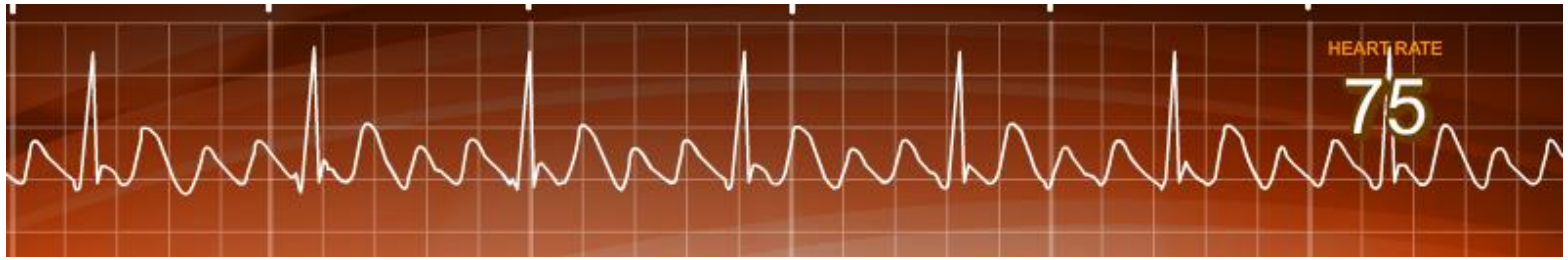
**Uncontrolled:** HR >100 BPM



**Controlled:** HR <100 BPM

- Stable or Unstable
- Intervention Needed ?

# Atrial Flutter (A Flutter)



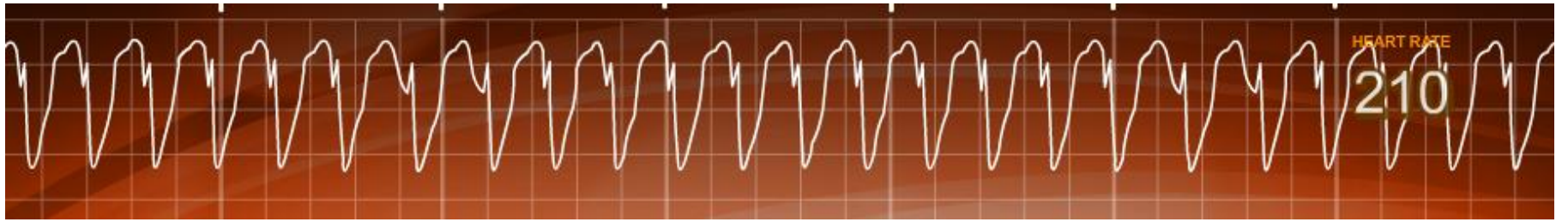

**A Flutter:** No P-wave, regular or irregular, saw tooth appearance between QRS complexes

- Stable or Unstable
- Intervention Needed ?

# Premature Ventricular Complexes (PVCs)

- Stable or Unstable
- Intervention Needed ?
- Causes ?

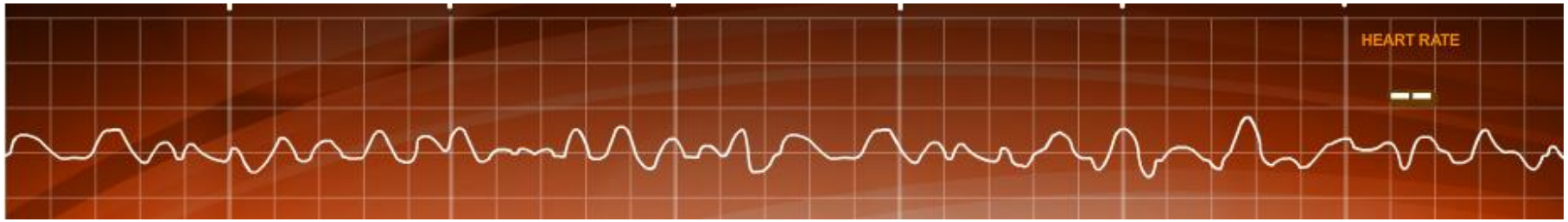
# Ventricular Tachycardia (V Tach)




**<u>V Tach:</u>** Wide QRS Complex, P-Wave usually not visible

- Pulse?
- Intervention Needed ?

# Ventricular Fibrillation (V Fib)

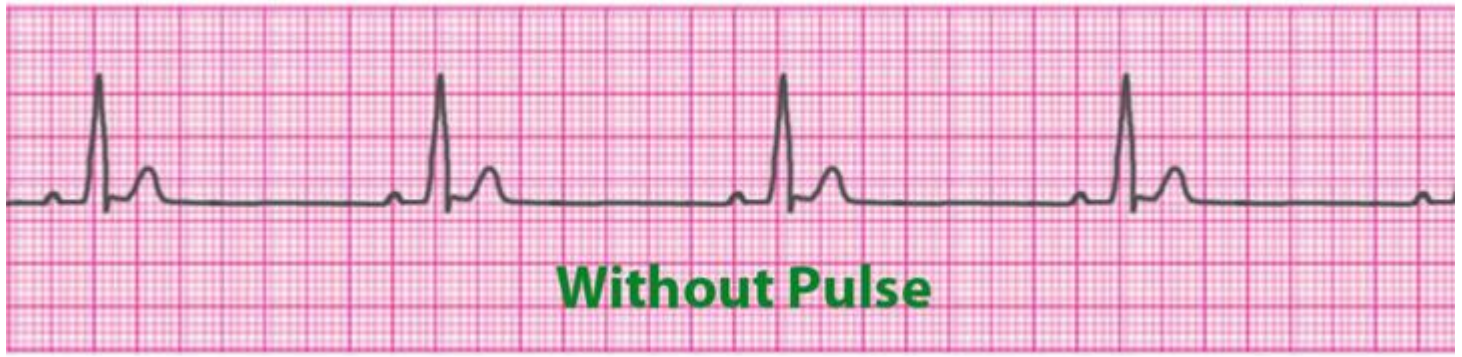



**V Fib:** Irregular, chaotic, No P-wave or identifiable QRS

- Pulse ?
- Intervention Needed ?
- Lethal

# Asystole

# Pulseless Electrical Activity (PEA)



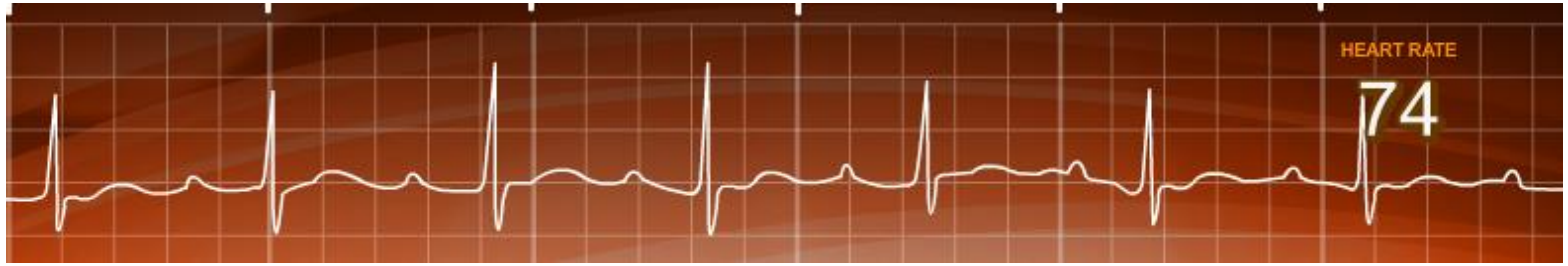

**Asystole:** No electrical activity

**PEA:** No mechanical contractions present

- Pulse?
- Intervention Needed ?

# 1° Heart Block: *Prolong PR Interval*

"If your **R** is far from the **P**, then you have a 1st Degree"



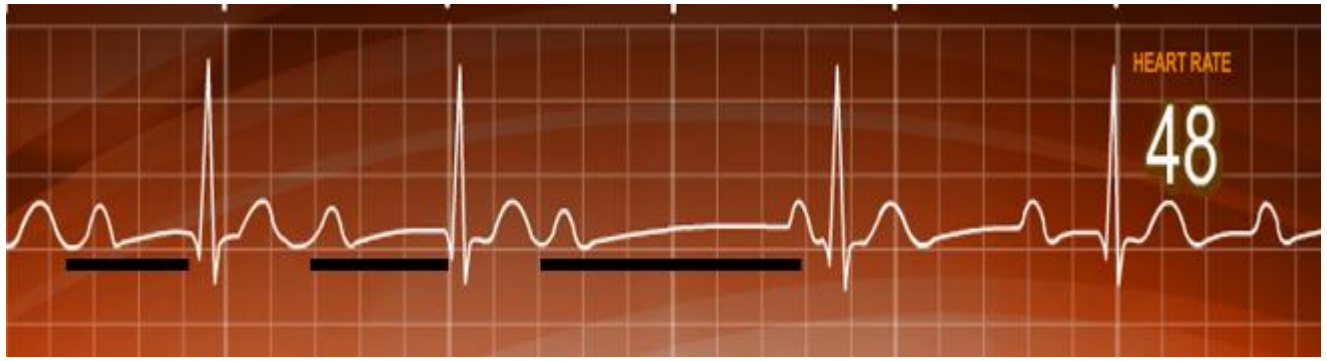


**<u>1° Heart Block:</u>** PRI >.20

- Stable or Unstable
- Intervention Needed ?

# 2° Heart Block- Type 1

"Longer, longer, longer, drop… then you have a Wenckebach"

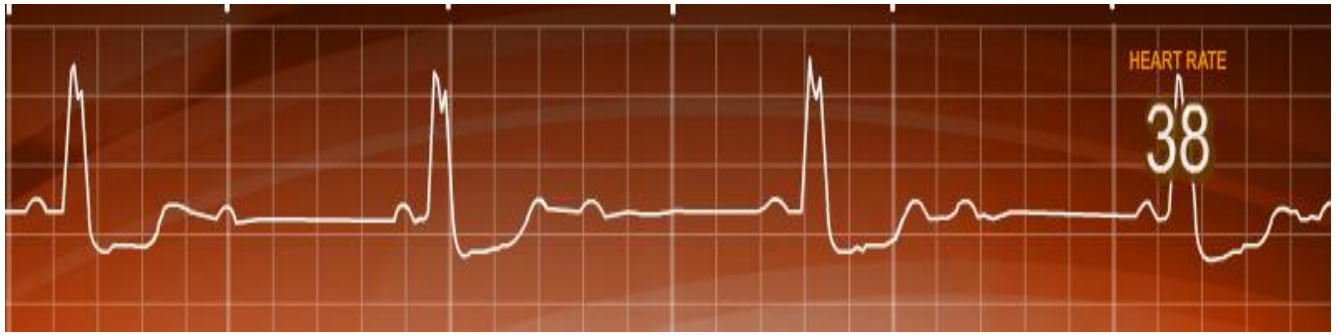



**2° Heart Block- Type 1:**
PRI gets progressively longer than drops

- Stable or Unstable
- Intervention Needed ?

# 2° Heart Block- Type 2

"If your **P**s don't go through, then you have a Mobitz II"

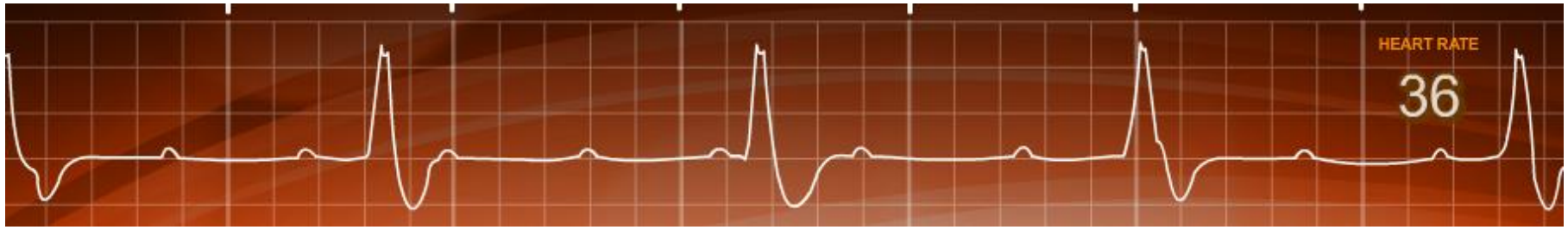




**2° Heart Block- Type 2:**
Consistent PRI, random drop of QRS

- Stable or Unstable
- Intervention Needed ?

# 3° Heart Block

"If your **P**s don't agree, then you have a 3rd degree"




**3° Heart Block:** Atria and ventricles are beating at separate rates w/ no association

- Stable or Unstable
- Intervention Needed ?

# Questions

## Contact Information:

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