

# Rhythm Interpretation Workbook

*Advanced Life Support (ALS) pre course requirement, designed to ensure that participants possess the required knowledge to attend an ALS course.*

*It is assumed that Registered Medical Practitioners, Nurses and Paramedics will possess a working knowledge of rhythms. This is not designed as a teaching tool, but rather to be used in conjunction with the ALS pre-test and course manual for reference, to ensure that all participants get the most out of their ALS course.*



Name: \_\_\_\_\_

Date completed: \_\_\_\_\_

Office use only: Marked and feedback given by \_\_\_\_\_

# The Ten-Stage Method for Cardiac Rhythm Interpretation

To use this model, work through each stage in order and answer each question. The method will greatly improve your interpretation skills if used every time.

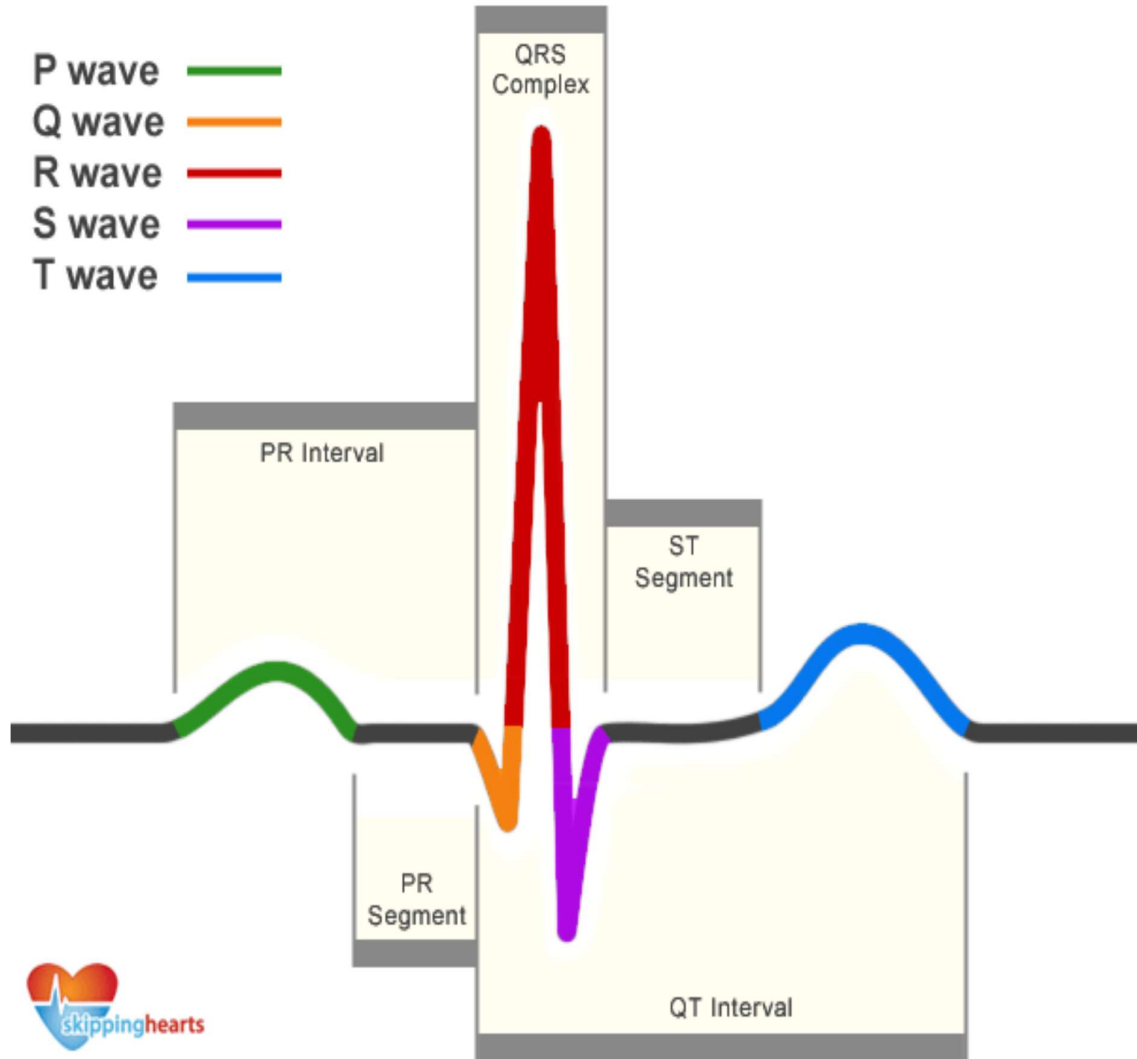
## But first……

- 1 If you recognise a lethal rhythm - commence basic and advanced life support immediately as per ARC guidelines.
- 2 Make sure you have confirmed the following:
  - Ensure you have labelled the trace with the correct patient details – 3 points of ID minimum.
  - A good trace, with a stable isoelectric line, with minimal interference.
  - The proper settings: 25mm/sec speed and 1mV to 1cm calibration.
  - Preferably use lead II, with at least 6 seconds of good quality trace.
- 3 It is important to interpret the underlying rhythm first – so ignore any T wave changes, ST segment issues and the presence of ectopic or pacemaker activity at this stage – you will make comments about this at stage 6 and beyond.
- 4 It is also important to assess your patient clinically, as this information may be of use when interpreting the rhythm.



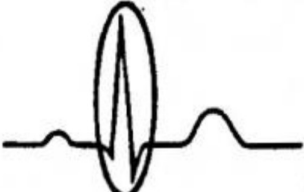


**NOTE: This workbook does not cover interpretation of 12 Lead ECGs, Fascicular / Bundle branch blocks, Axis Deviation or other more advanced 12 lead ECG topics.**

**Please attend to further education in this field if required**

## ECG of Normal Sinus Rhythm



The movement of electricity through different regions of the heart create the following ECG patterns:

Electrical Activity	Graphic Depiction	Associated Pattern
Atrial Depolarization		P Wave
Delay at AV Node		PR Segment
Ventricular Depolarization		QRS Complex
Ventricular Repolarization		T Wave
No electrical activity		Isoelectric Line



**Stage 1 – Is there a QRS Complex after every P Wave / Is there a P wave preceding every QRS Complex?**

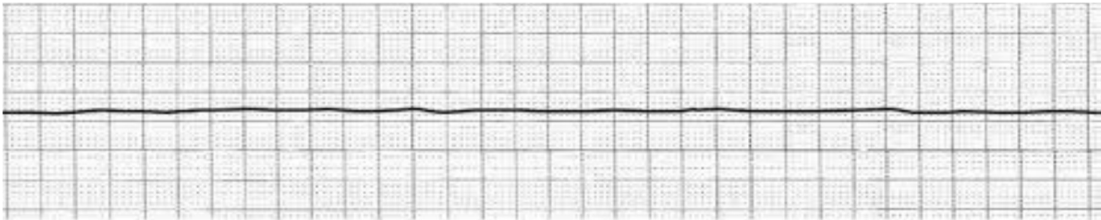
○ Practice Rhythm 1 - Normal Sinus Rhythm

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No



○ Practice Rhythm 2 - Asystole

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No



○ Practice Rhythm 3 – Primary Ventricular Standstill

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No



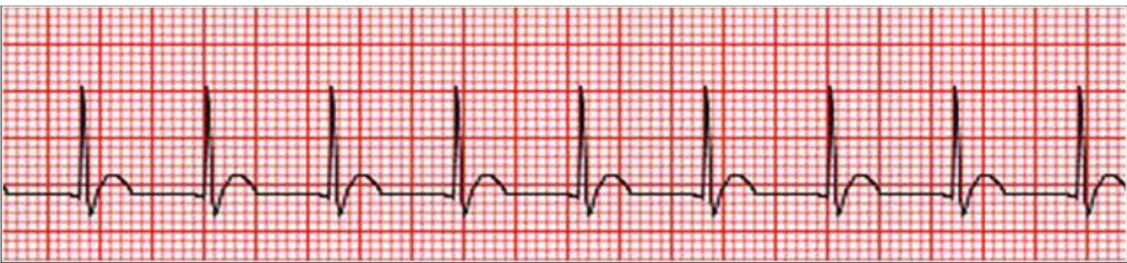
○ Practice Rhythm 4 – Atrial Fibrillation

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No



○ Practice Rhythm 5 – Accelerated Junctional Rhythm

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No

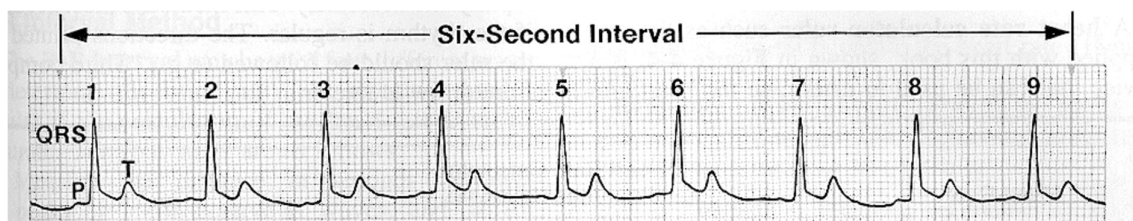


## Stage 2 – What is the Ventricular Rate? Is it between 60 and 100?

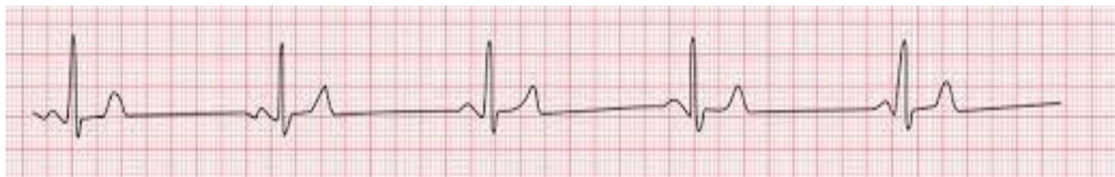
Refer to the heart rate on the monitor/ECG or use six-second method.

- 1 little square = 0.04 sec
- 1 big square = 0.2 sec
- 5 big squares = 1 sec
- Count out 30 large squares (6 seconds),
- Identify number of QRS complexes within the 6 seconds
- Multiply by 10 to produce rate over one minute

*Normal – Heart rate between 60 – 100 beats/min:*



- Practice Rhythm 6 – Sinus Bradycardia
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?



- Practice Rhythm 7 – Atrial Tachycardia (aka SVT)
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?





### Stage 3 – Is the Rhythm regular or irregular?

Map out the QRS complexes to identify if they fall at regular or irregular intervals.

*Regular QRS intervals = Normal:*

- Practice Rhythm 8 – Normal Sinus Rhythm
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?



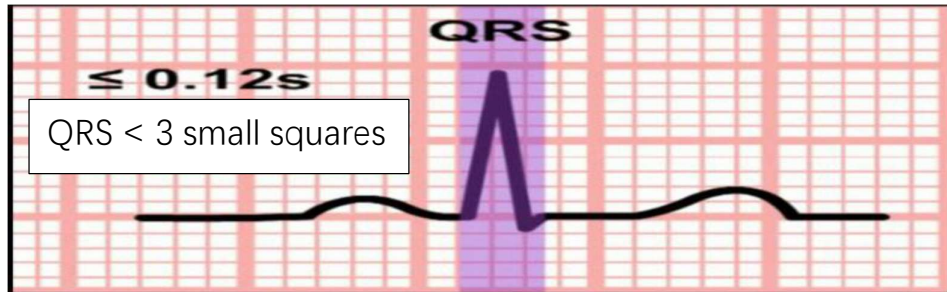
- Practice Rhythm 9 – Atrial Fibrillation
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?



### Stage 4 – Is the QRS complex narrow or broad?

Refer to QRS complexes and determine whether they are narrow (< 3 small squares) as well as sharp and angular.

*QRS narrow = Normal:*



- Practice Rhythm 10 – Ventricular Tachycardia
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?

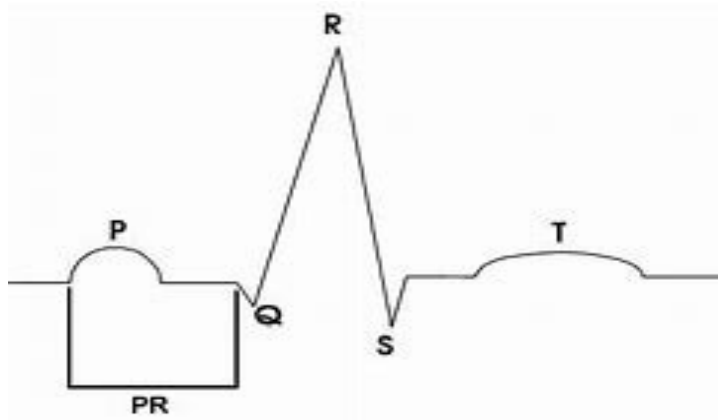


- Practice Rhythm 11 – Normal Sinus Rhythm
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?



### Stage 5 – Is the PR interval less than 0.2 second?

*Normal PR interval – 0.12 to 0.20 seconds*



- Practice Rhythm 12 – Normal Sinus Rhythm
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No

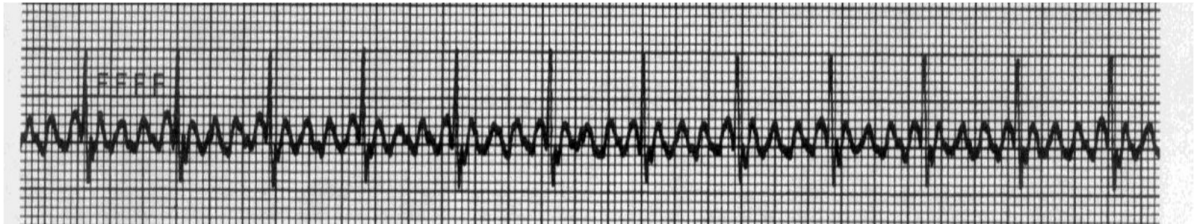


- Practice Rhythm 13 – 2<sup>nd</sup> Degree Heart Block, Type 1, 2:1 ratio
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No

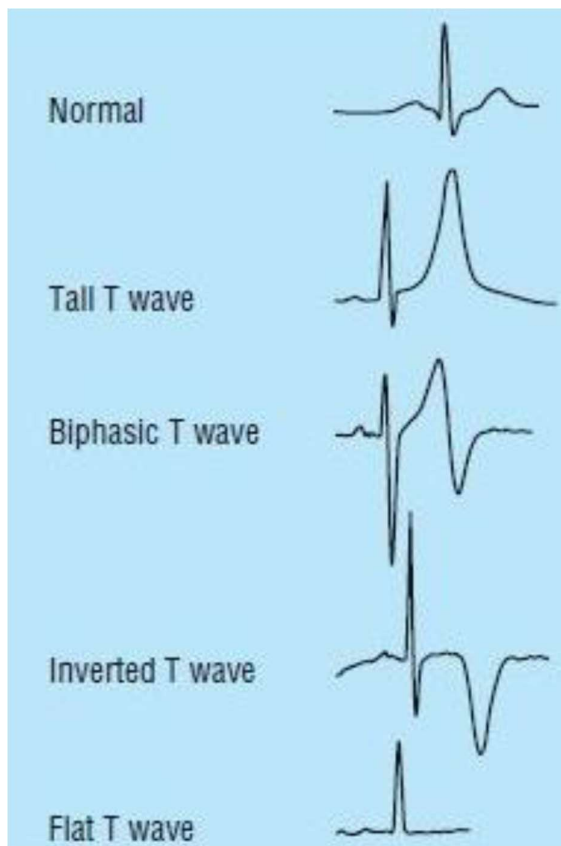




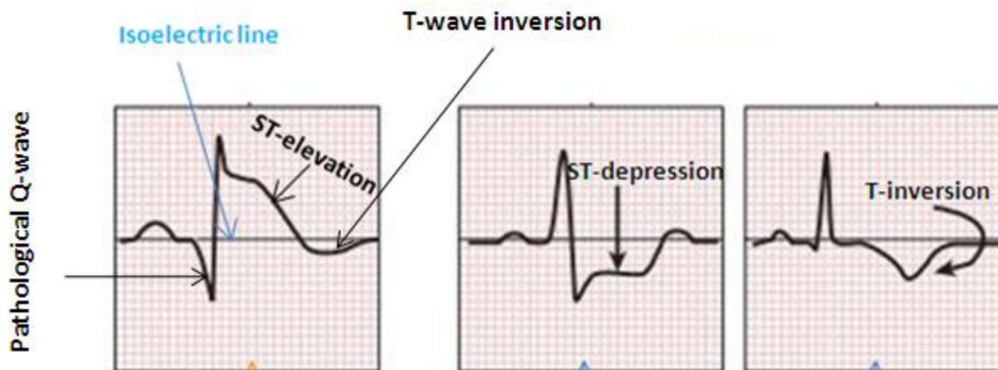
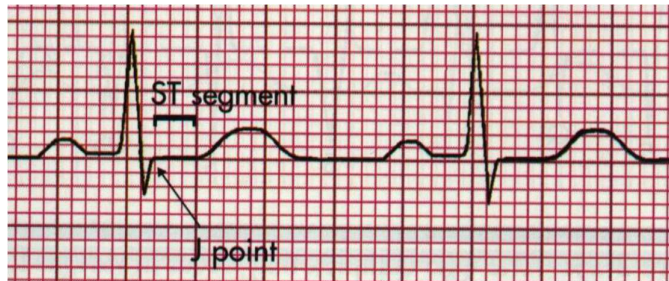
- Practice Rhythm 14 – Atrial Flutter 3:1 Block
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No



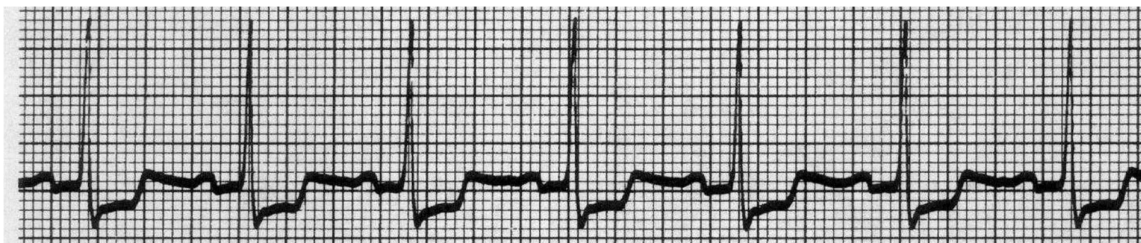
**Stage 6 - Evaluate the T wave**



## Stage 7 - Evaluate the ST Segment



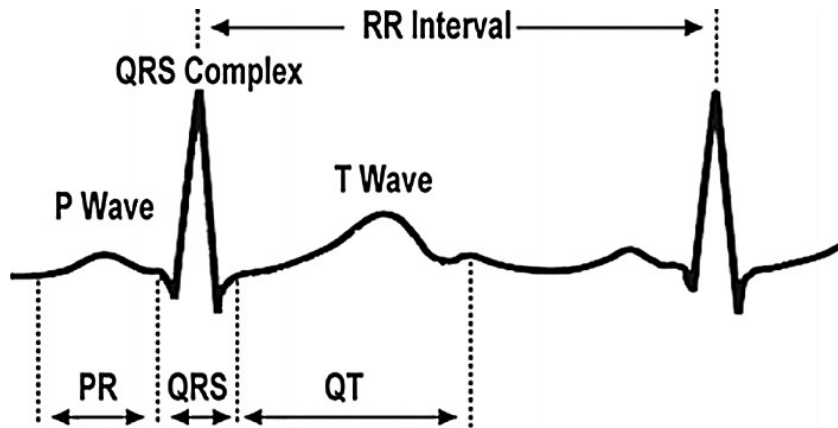
- Practice Rhythm 15 – Borderline 1<sup>st</sup> Degree Heart Block with ST Segment Depression and T Wave Inversion
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?



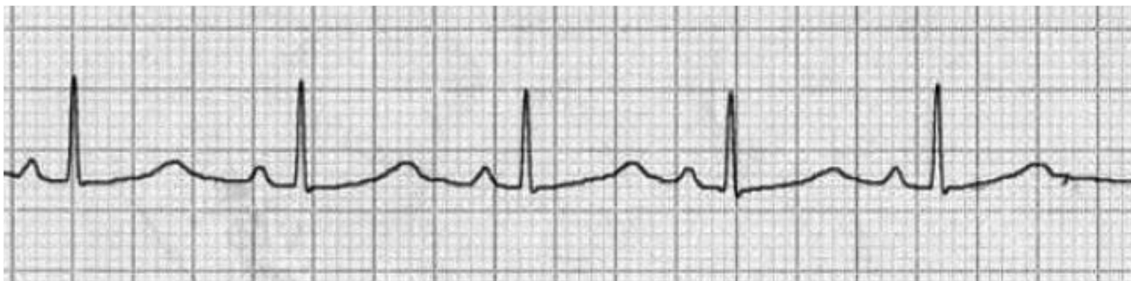


## Stage 8 - Evaluate the QT interval

*A normal QT interval is less than half of the R-to-R interval*



- Practice Rhythm 16 – Normal Sinus Rhythm with prolonged QT Interval
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?

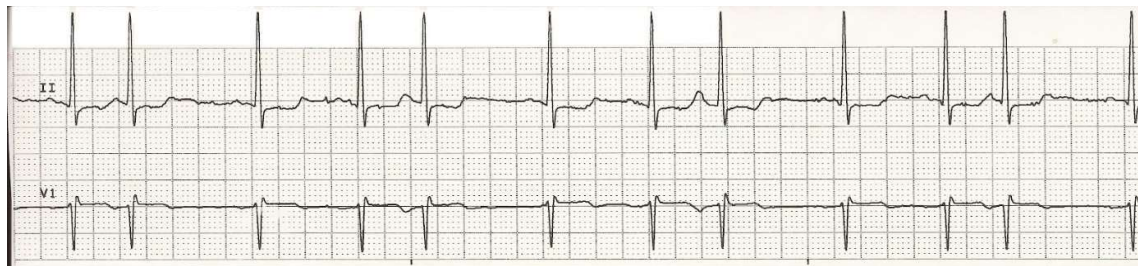


## Stage 9 – Presence of ectopic activity

Ectopic beats are extra beats that come out of sync with the normal steady rhythm. They cause the heart to pump earlier than it should do, which is why they may also be called premature beats

*Make comment of the presence of any:*

- *Atrial ectopics PAC*
- *Junctional ectopics PJC*
- *Ventricular ectopics PVC*
- *Patterns / issues such as*
  - *R on T Phenomenon*
  - *Couplets*
  - *Triplets*
  - *Bigeminy*
  - *Trigeminy*
  - *Quadrigeminy*
  - *Unifocal*
  - *Multifocal*
- Practice Rhythm 17 – Premature Atrial Ectopics
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?



o Practice Rhythm 18 – Premature Junctional Ectopics

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



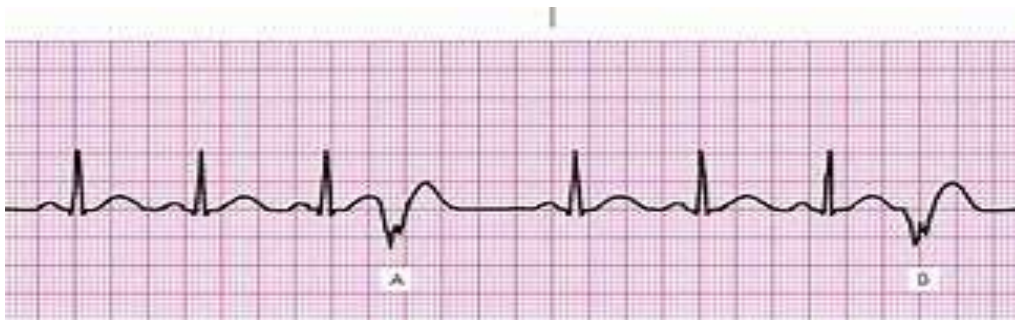
o Practice Rhythm 19 – Premature Ventricular Ectopic

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



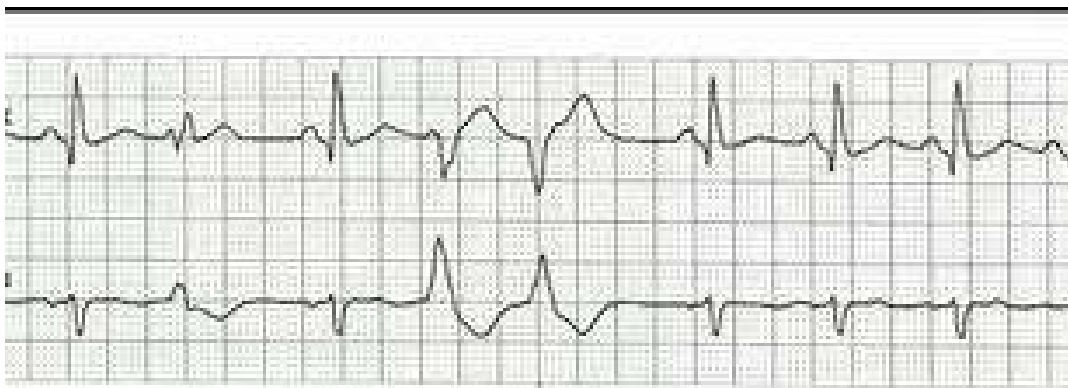
o Practice Rhythm 20 – R on T Phenomenon

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



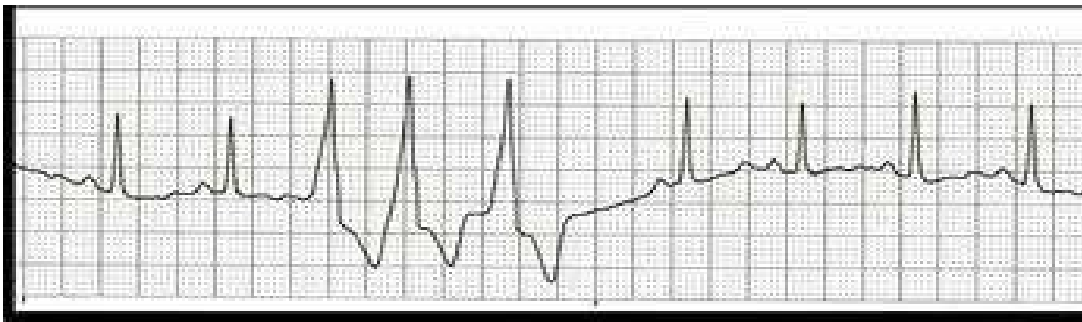
o Practice Rhythm 21 – Couplet PVC

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



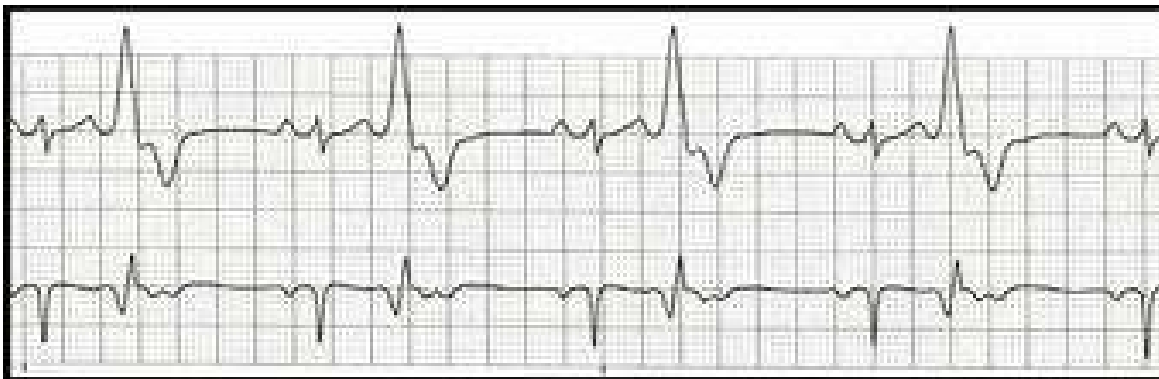
o Practice Rhythm 22 – Triplet PVC

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



o Practice Rhythm 23 – Ventricular Bigeminy

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



o Practice Rhythm 24 – Ventricular Trigeminy

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



o Practice Rhythm 25 – Ventricular Quadrigeminy

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



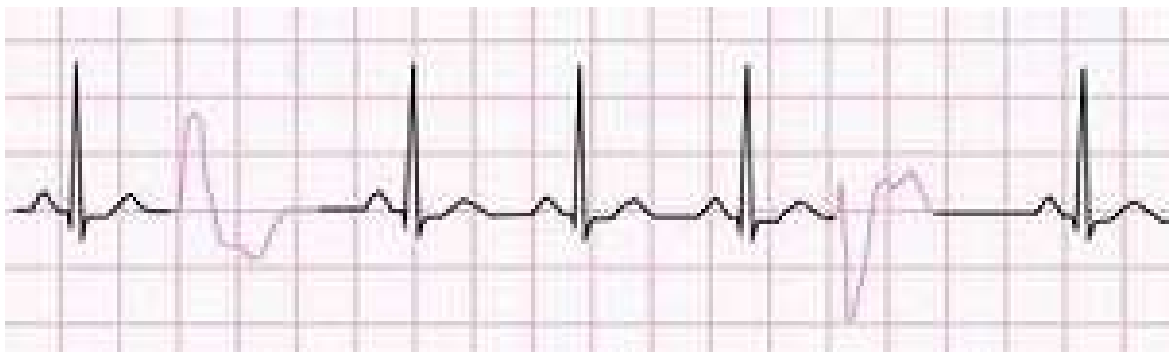
o Practice Rhythm 26 – Unifocal PVC

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



o Practice Rhythm 27 – Multi-Focal PVC

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?



## Stage 10 – Paced rhythms

A basic knowledge of how pacemakers function can be useful when interpreting paced rhythms.

It is helpful to know:

- The type of pacemaker
  - The programmed parameters
  - The diagnosis that necessitated a pacemaker
    - Ventricular
    - AV Sequential
    - Failure to capture / sense
- Practice Rhythm 28 – Ventricular Pacemaker
1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?





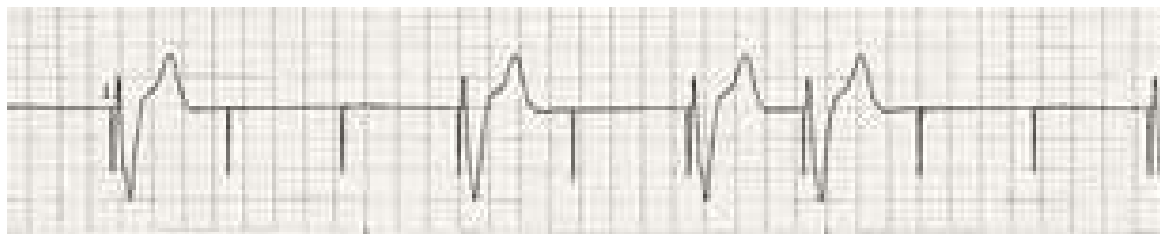
o Practice Rhythm 29 – AV Sequential Pacemaker

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?



o Practice Rhythm 30 – Pacemaker failure to capture

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?



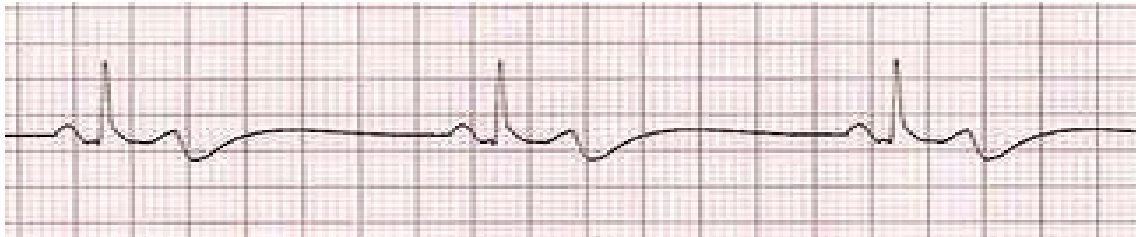
**Also – know your Lethal rhythms that require Advanced Life Support interventions**

- Severe Bradycardia
  - Severe Tachycardia
  - Shockable
    - Ventricular Tachycardia (VT)
    - Ventricular Fibrillation (VF)
    - Torsades De Pointes (TDP)
  - Non-Shockable
    - Asystole
    - Pulseless Electrical Activity (PEA)
- Practice Rhythm 31 – Junctional Tachycardia with ST segment elevation
1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?



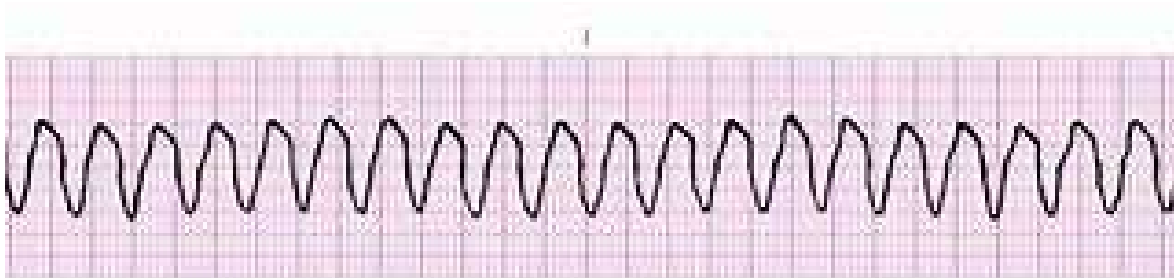
o Practice Rhythm 32 – Sinus Bradycardia

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?

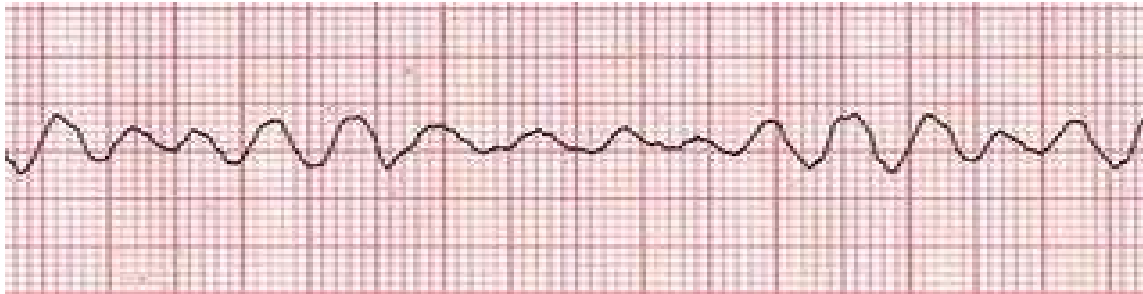


o Practice Rhythm 33 – Ventricular Tachycardia (VT)

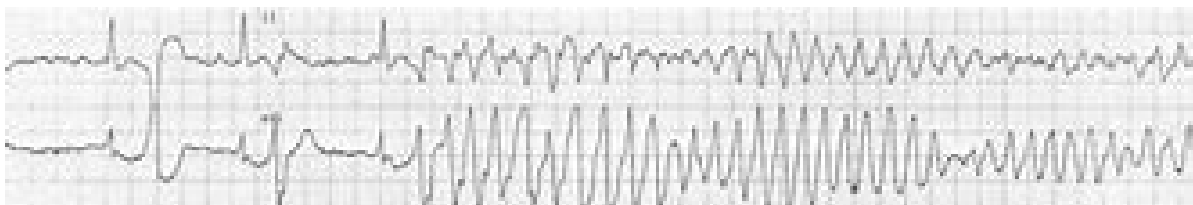
1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?



- Practice Rhythm 34 – Ventricular Fibrillation (VF)
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

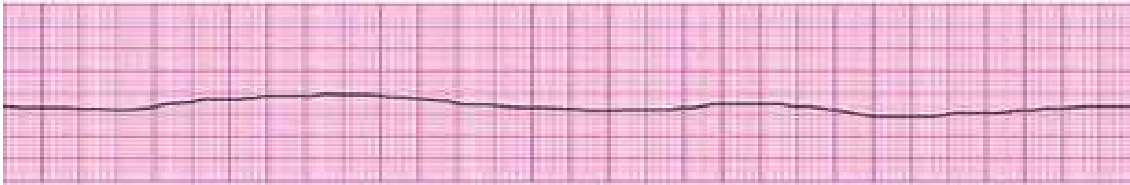


- Practice Rhythm 35 – Torsades De Pointes
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?



o Practice Rhythm 36 - Asystole

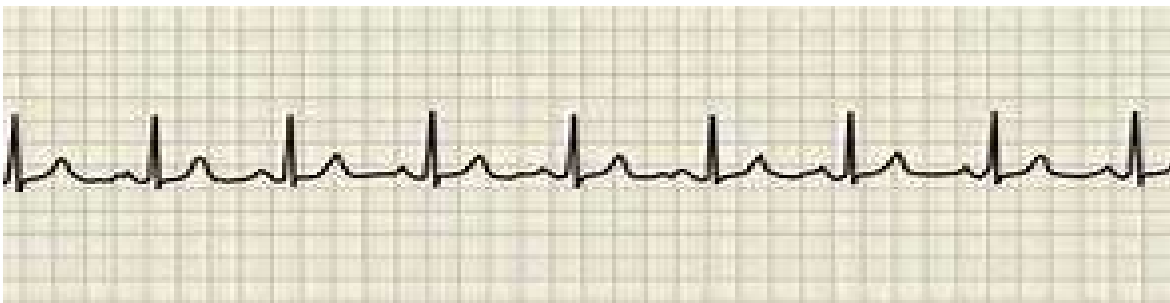
1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?



o Practice Rhythm 37 – Pulseless Electrical Activity (PEA)

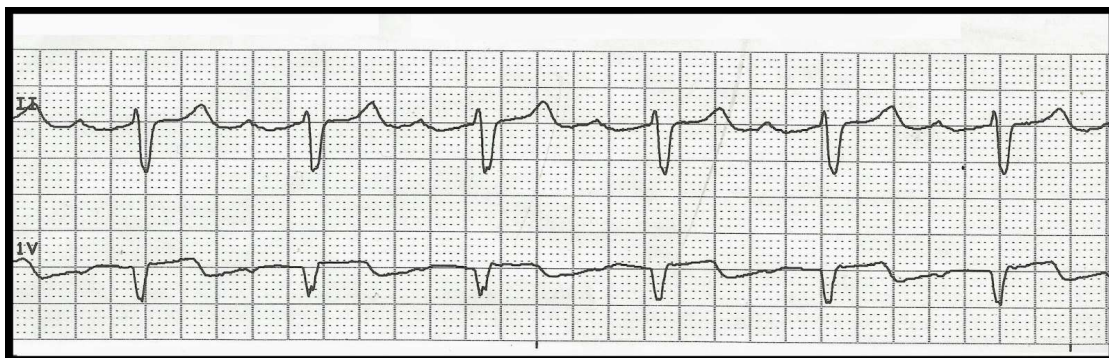
(note – this patient has no pulse and is not breathing)

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?



### Additional – Know your Heart blocks!

- 1st Degree Heart Block - PR interval greater than 0.2 Sec, regularly
  - 2<sup>nd</sup> Degree Heart Block Type 1 – Normal beat, then a dropped complex after a normal P wave, can be regular or variable, and is described in ratios (normal V dropped) eg 2:1, 3:1 or variable
  - 2<sup>nd</sup> Degree Heart Block Type 2 (Wenkebach) – Progressive lengthening of the PR Interval until a complex is dropped, then the cycle starts again
  - 3<sup>rd</sup> Degree Heart Block / Complete Heart Block – complete disassociation between the Atrium and Ventricles – likely to be P waves at a rate 60-100, then a slow ventricular escape rhythm at a rate of 20-40
- o Practice Rhythm 38 – 1<sup>st</sup> Degree Heart Block
1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?





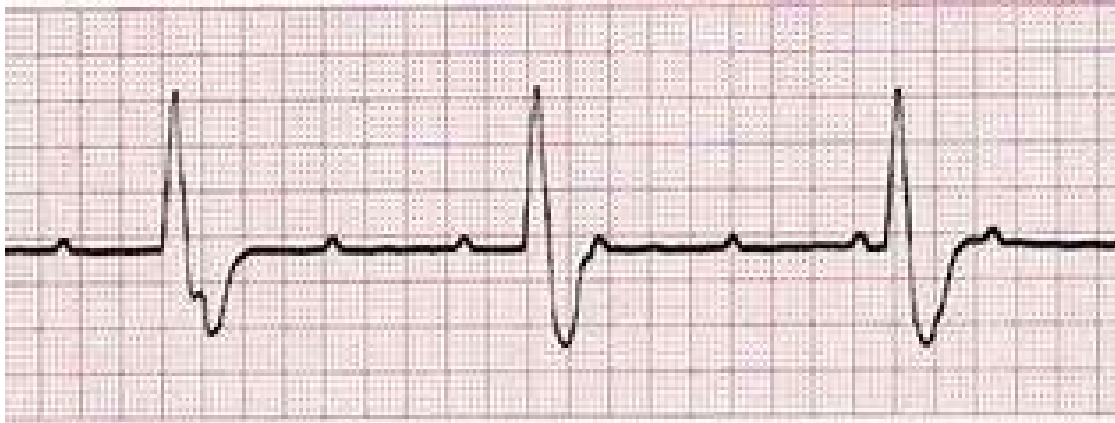
- Practice Rhythm 39 – 2<sup>nd</sup> Degree Heart Block Type 1
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?



- Practice Rhythm 40 – 2<sup>nd</sup> Degree Heart Block type 2 Wenkebach
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?



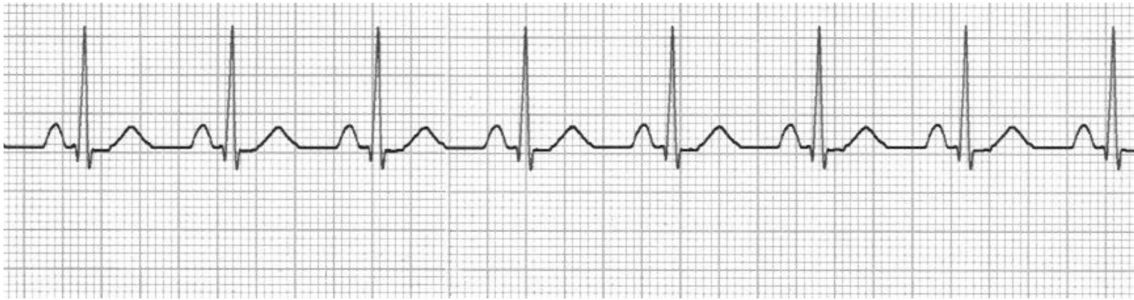
- Practice Rhythm 41 – 3<sup>rd</sup> Degree Heart Block / Complete Heart Block
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 20 and 40?
    - a. What is the Atrial rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?





## Rhythm Strip test

### Rhythm 1:



- Test Rhythm 1
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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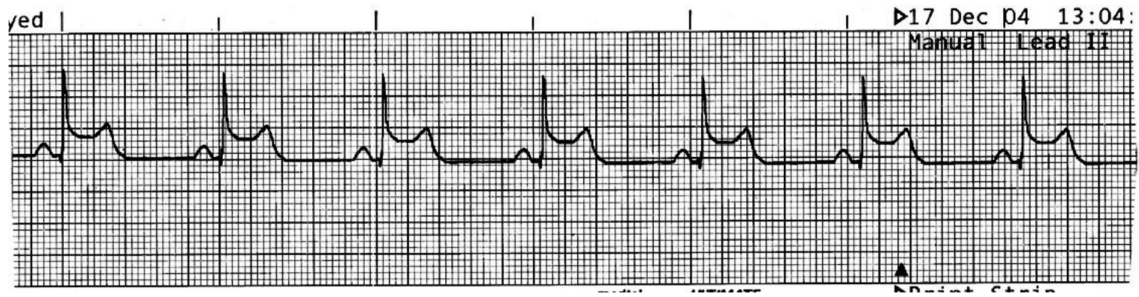
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### Test Rhythm 2:



- o Test Rhythm 2
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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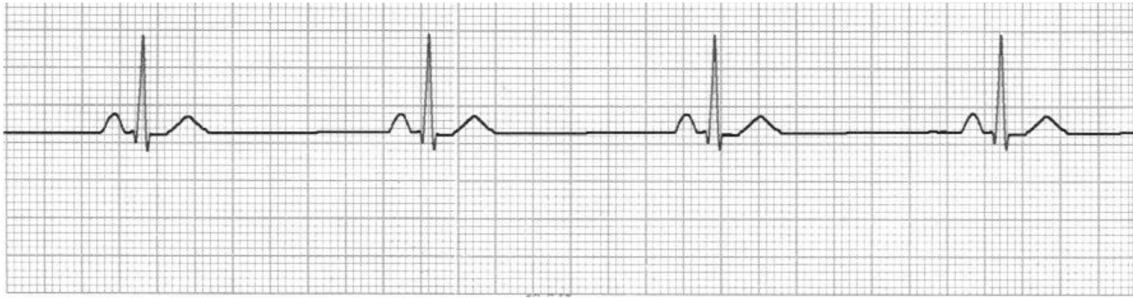
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**Rhythm 3:**



- Test Rhythm 3
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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**Rhythm 4:**



- o Test Rhythm 4
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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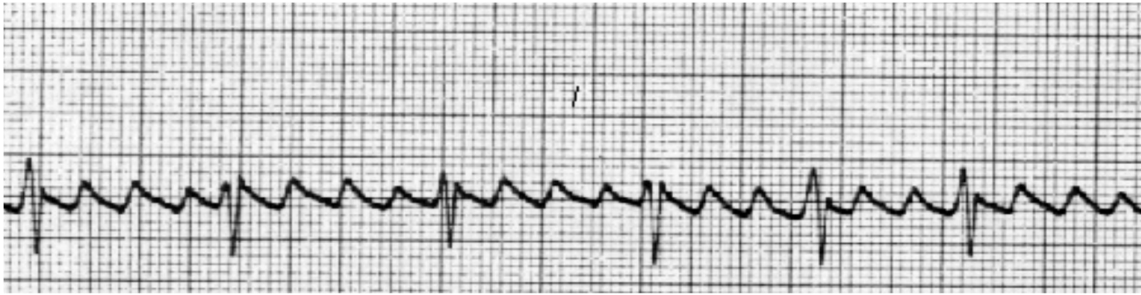
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**Rhythm 5:**



- Test Rhythm 5
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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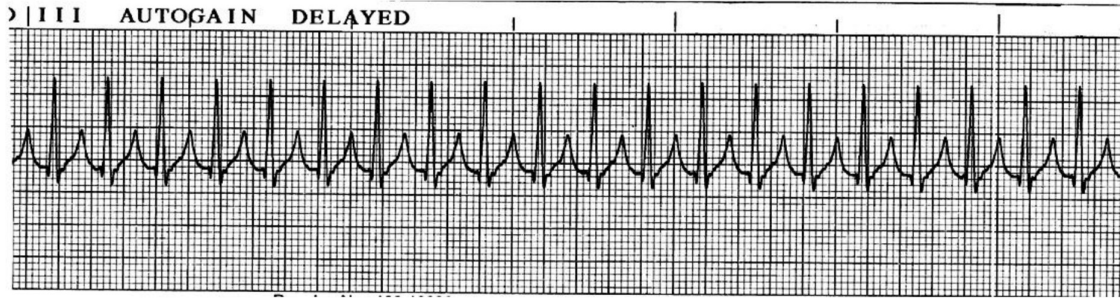
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**Rhythm 6:**



- Test Rhythm 6
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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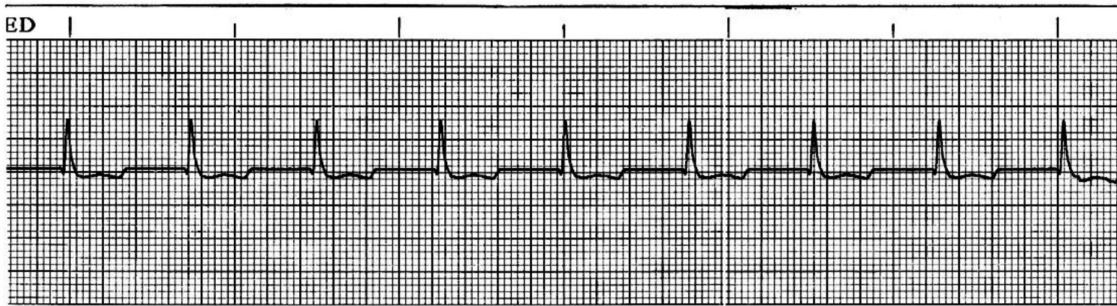
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### Rhythm 7:



o Test Rhythm 7

1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
2. What is the Ventricular Rate? Is it between 60 and 100?
3. Is the Rhythm regular / irregular?
4. Are the QRS complexes narrow / broad?
5. Is the PR interval normal? Yes / No
6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
7. ST segment is: Isoelectric / Depressed / Elevated?
8. QT interval is Normal / Prolonged?
9. Presence of any ectopic activity?
10. Is there any pacing activity?

#### Interpretation

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#### Why?

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**Rhythm 8:**



- Test Rhythm 8
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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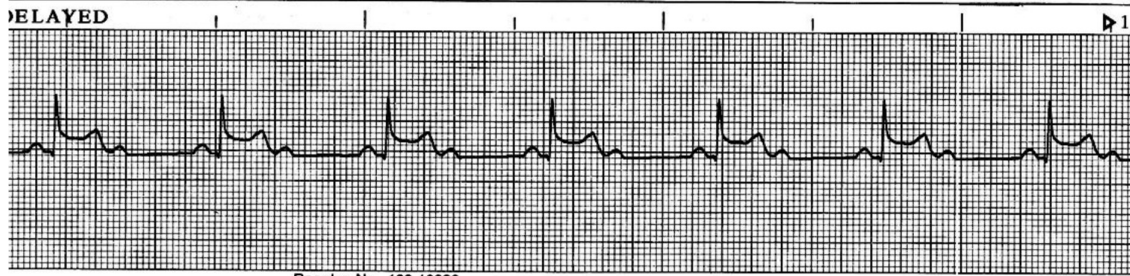
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**Rhythm 9:**



- Test Rhythm 9
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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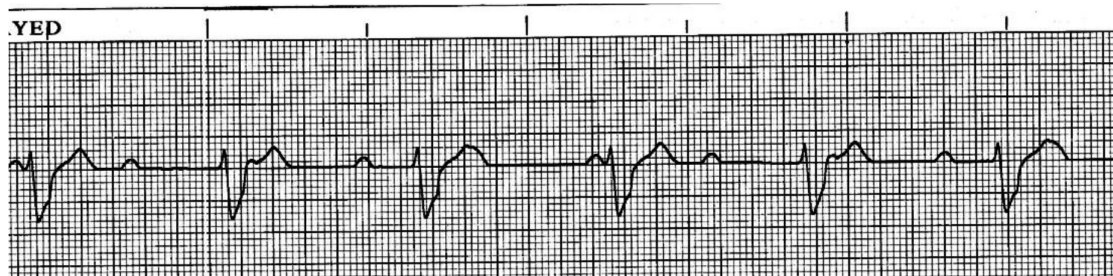
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### Rhythm 10:



- Test Rhythm 10
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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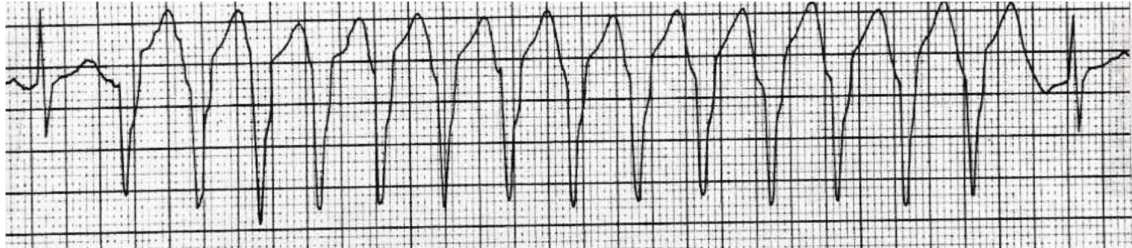
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**Rhythm 11:**



- Test Rhythm 11
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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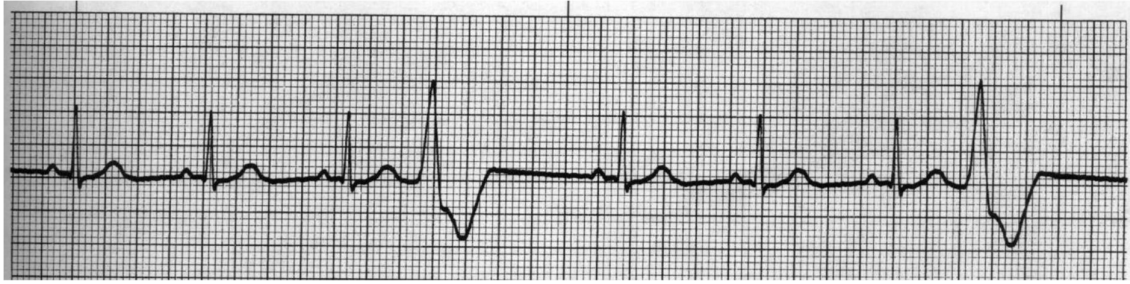
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**Rhythm 12:**



- Test Rhythm 12
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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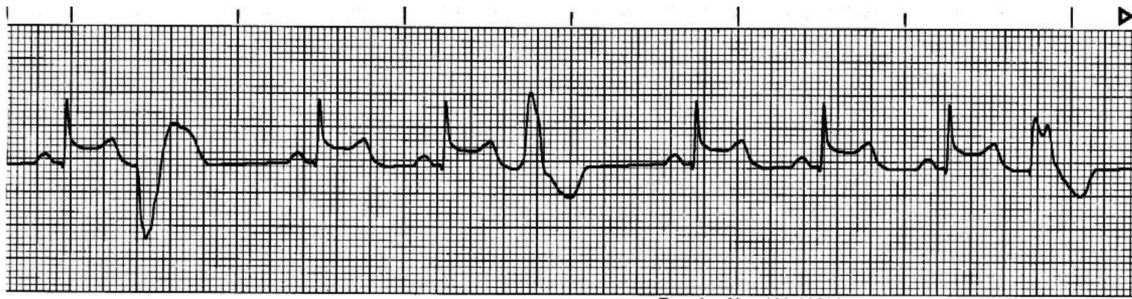
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**Rhythm 13:**



- Test Rhythm 13
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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**Rhythm 14:**



- Test Rhythm 14
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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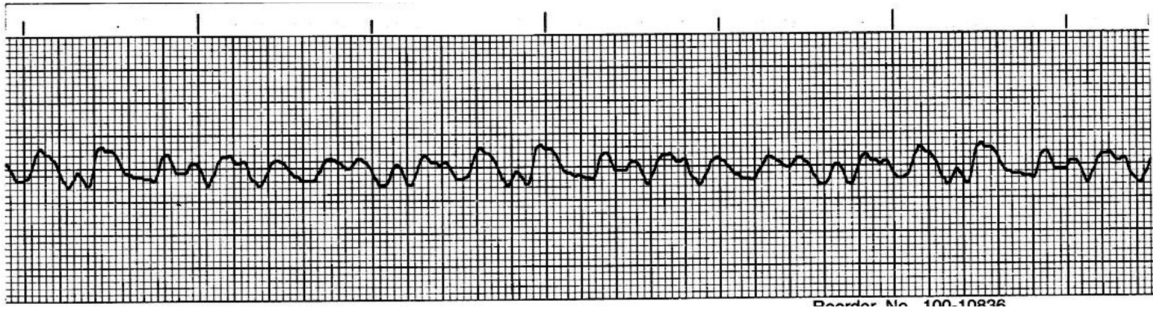
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### Rhythm 15:



- o Test Rhythm 15
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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**Rhythm 16:**



- Test Rhythm 16
  1. Is there a QRS Complex after every P Wave / is there a P wave preceding every QRS Complex? Yes / No
  2. What is the Ventricular Rate? Is it between 60 and 100?
  3. Is the Rhythm regular / irregular?
  4. Are the QRS complexes narrow / broad?
  5. Is the PR interval normal? Yes / No
  6. Is the T wave: Upright / Inverted / Peaked / Biphasic?
  7. ST segment is: Isoelectric / Depressed / Elevated?
  8. QT interval is Normal / Prolonged?
  9. Presence of any ectopic activity?
  10. Is there any pacing activity?

Interpretation

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Why?

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# Answer sheet

Rhythm Strip test (pages 29 – 44)

## Rhythm

1. Normal Sinus Rhythm
2. NSR with ST Elevation in Lead 2 – probable Inferior MI – will need to interpret 12 lead ECG
3. Sinus Bradycardia
4. Atrial Fibrillation
5. Atrial Flutter - variable block 3:1 to 4:1
6. Atrial Tachycardia 'SVT'
7. Junctional Rhythm
8. 1<sup>st</sup> Degree Heart Block
9. 2<sup>nd</sup> Degree Heart Block type 1 2:1 Block, with ST Elevation
10. 3<sup>rd</sup> Degree Heart Block / Complete Heart Block
11. Short run of VT, self-limiting, probable Sinus Rhythm underlying
12. Normal Sinus Rhythm with unifocal PVCs
13. Normal Sinus Rhythm with ST Elevation and Multi Focal PVCs
14. Sinus Tachycardia into Torsades De Points
15. Ventricular Fibrillation
16. Ventricular Paced Rhythm