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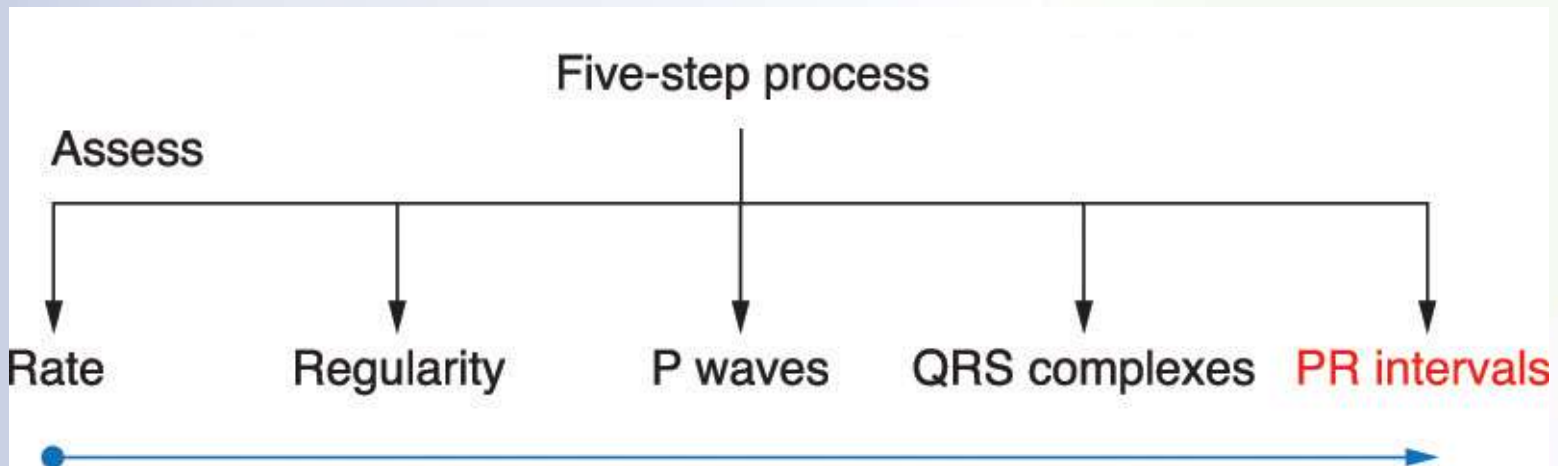
# PR Intervals

Fast & Easy ECGs – A Self-Paced  
Learning Program



# Step 5 of ECG Analysis

- Examining the PR intervals

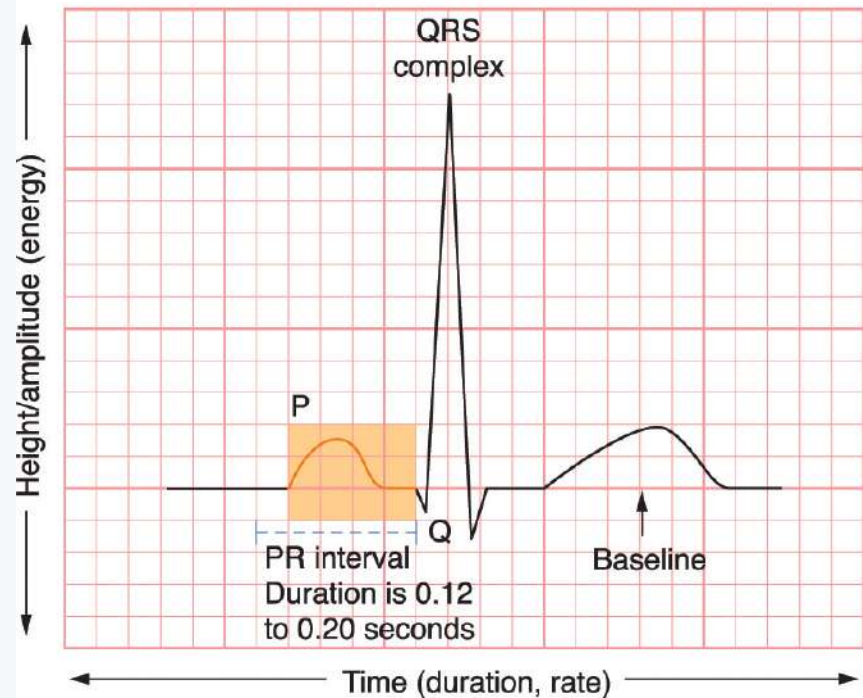


# The PR Interval

- Denotes depolarization of the heart from the SA node through the atria, AV node and His-Purkinje system

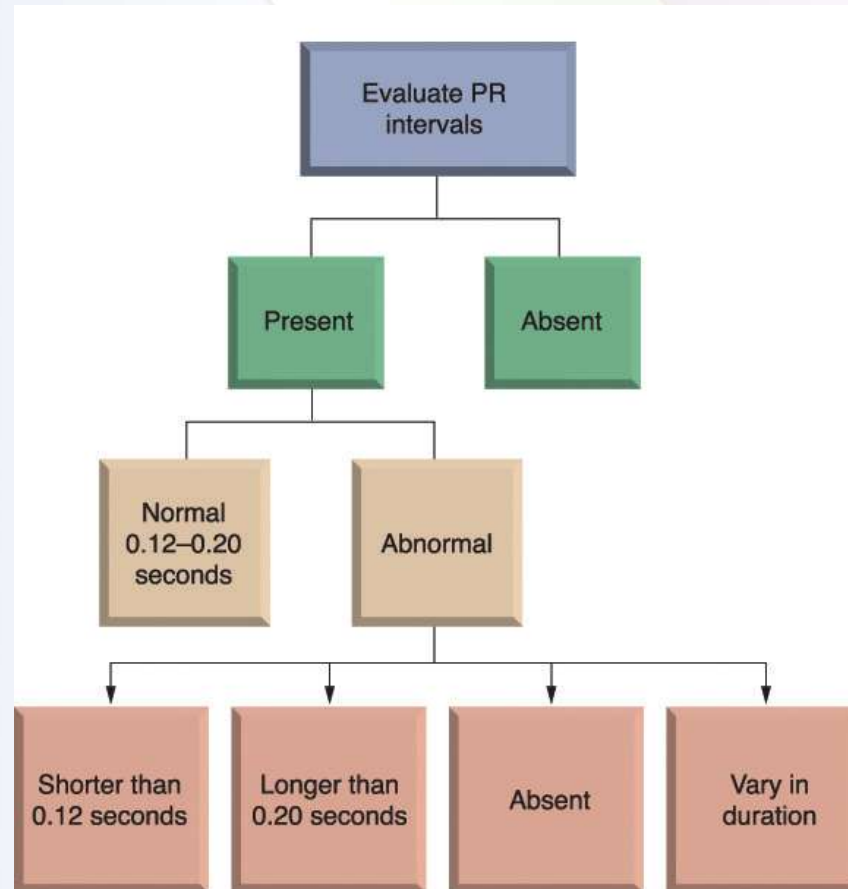
# The PR Interval

- The distance from the beginning of the P wave to the beginning of the Q wave
- Morphology is a P wave and a flat line



# The PR Interval

- Considered abnormal if they are shorter, longer, absent or vary



# Shorter P'R Intervals

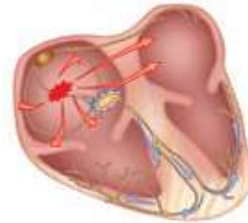
- Shorter P'R intervals occur when the impulse originates in the atria close to the AV junction or in the AV junction

# Shorter P'R Intervals

Normally, the SA node initiates impulses, resulting in a repetitive cycle of P, QRS, and T waveforms.



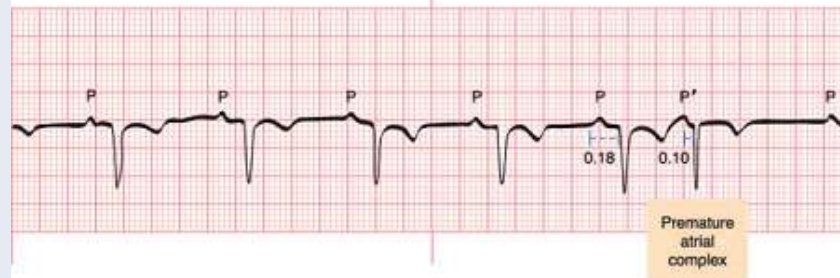
Premature atrial complexes occur when a site in the atria fires before the SA node is able to initiate an impulse.



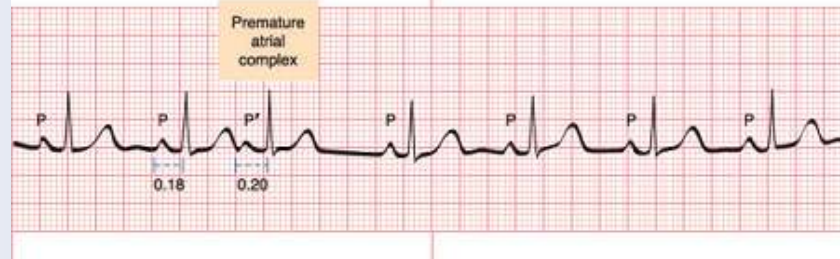
Following the premature beat, the SA node typically reinitiates impulses in the normal manner.



A shorter than normal PR interval occurs when the PAC arises closer to the AV junction.



A P9R interval within normal duration occurs when the PAC arises from a site in the upper- or middle-right atrium.

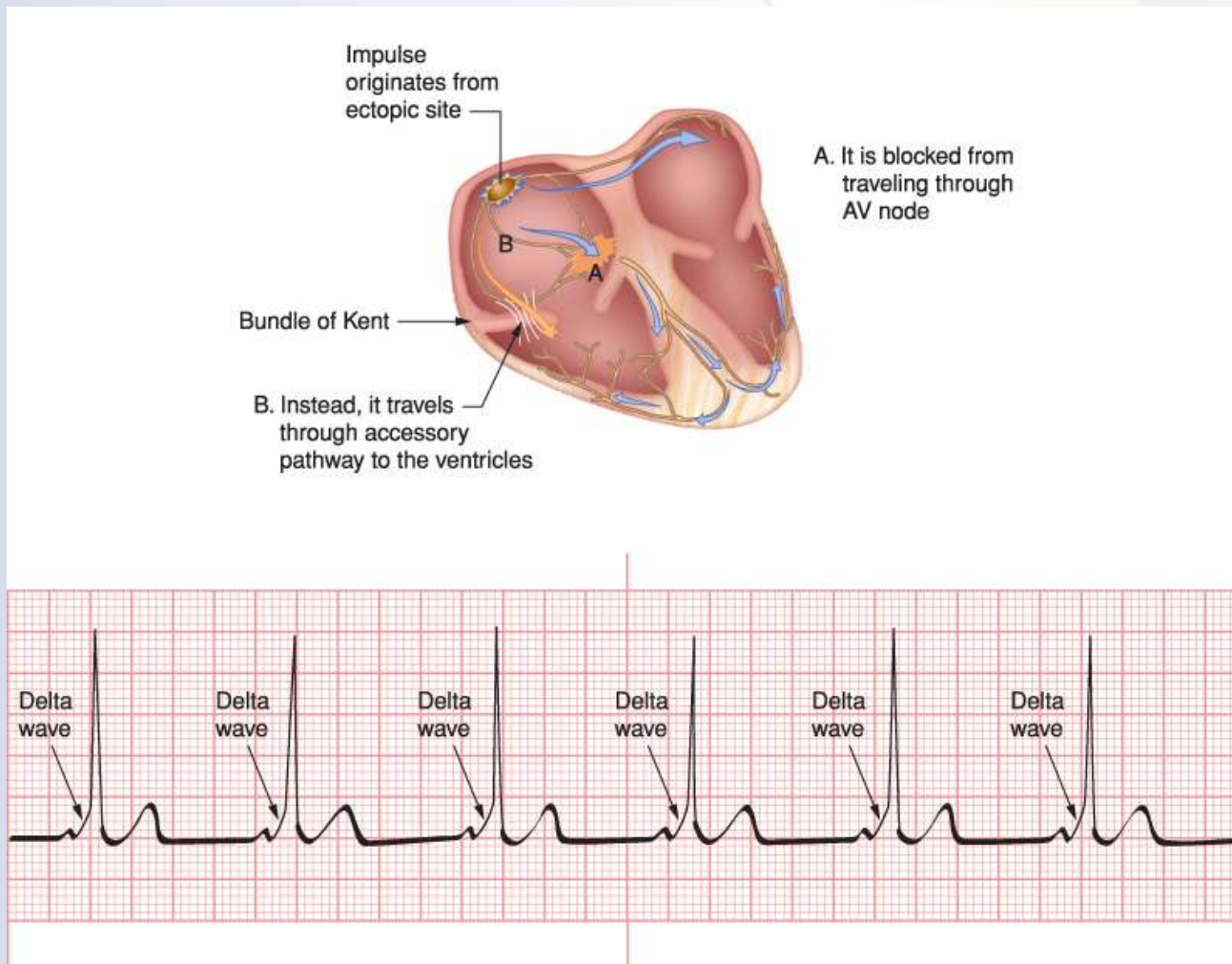


# Shorter P'R Intervals

- Can occur when an impulse arises from a supraventricular site but travels through abnormal accessory pathways to the ventricles
- Leads to premature ventricular depolarization called preexcitation

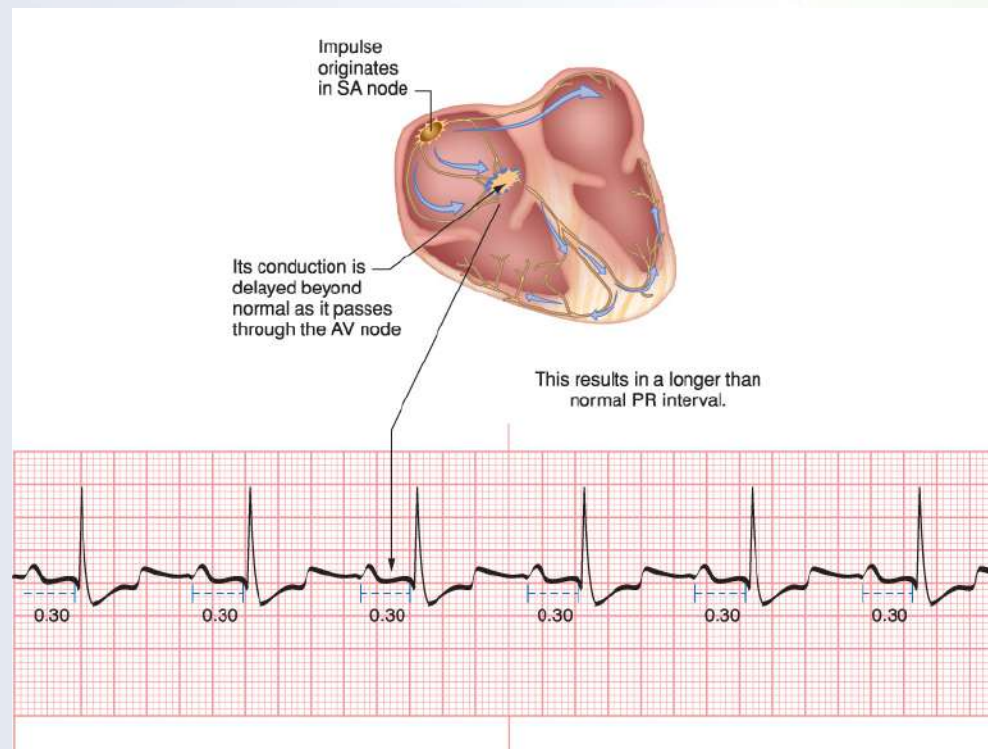


# Shorter P'R Intervals



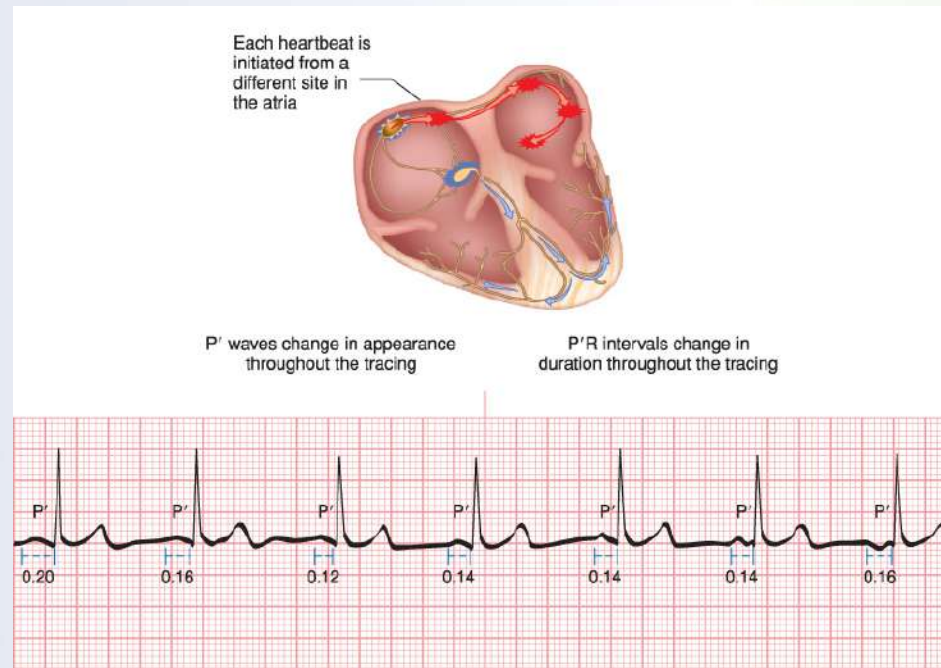
# Longer P'R Intervals

- Occur when there is a delay in impulse conduction through the AV node
- For example, 1<sup>st</sup>-degree AV heart block



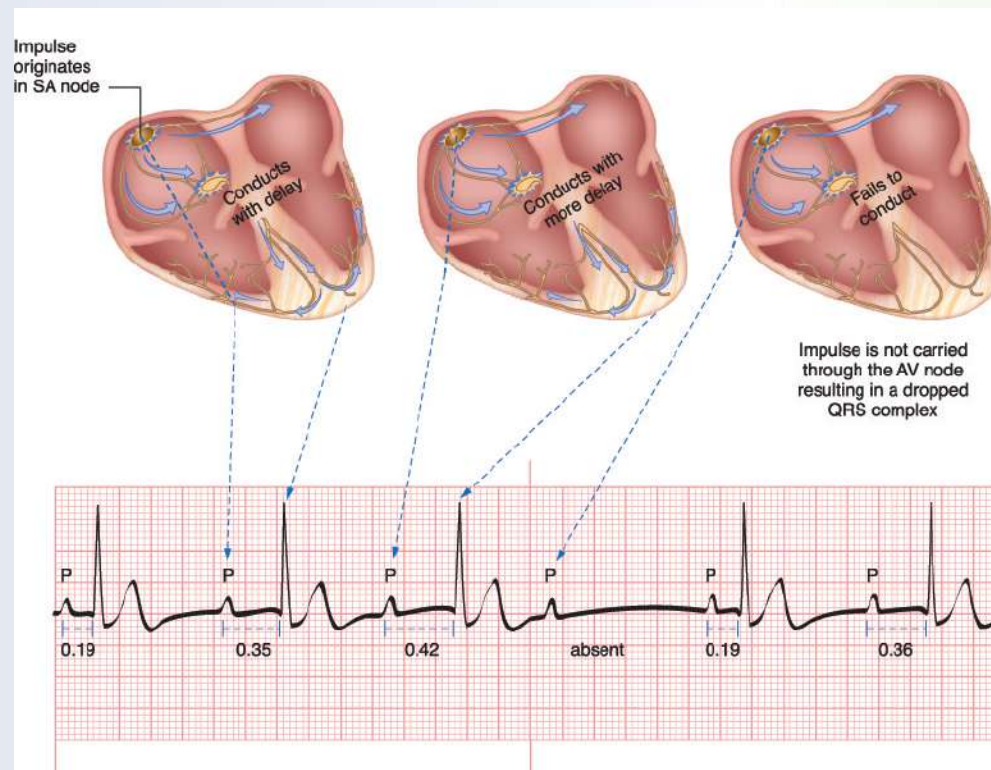
# Varying P'R Intervals

- In wandering atrial pacemaker the pacemaker site moves from beat to beat causing the P' waves to appear different and the P'R intervals to vary



# Varying P'R Intervals

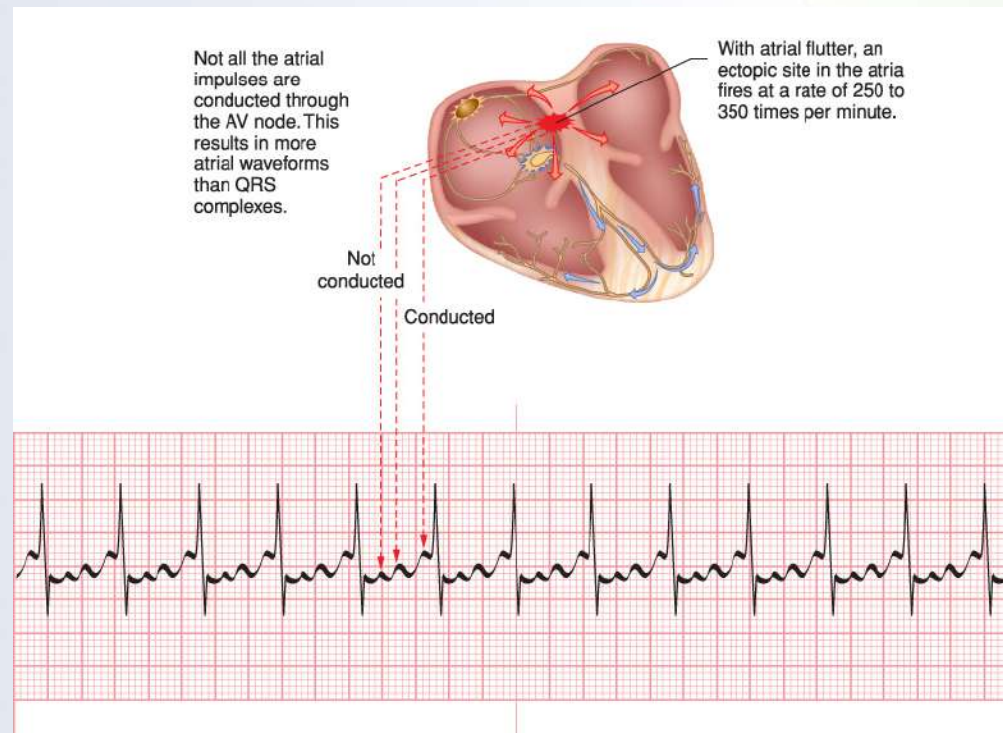
- 2<sup>nd</sup>-degree AV heart block, Type I has PR intervals that are progressively longer until a QRS complex is dropped and then the cycle repeats





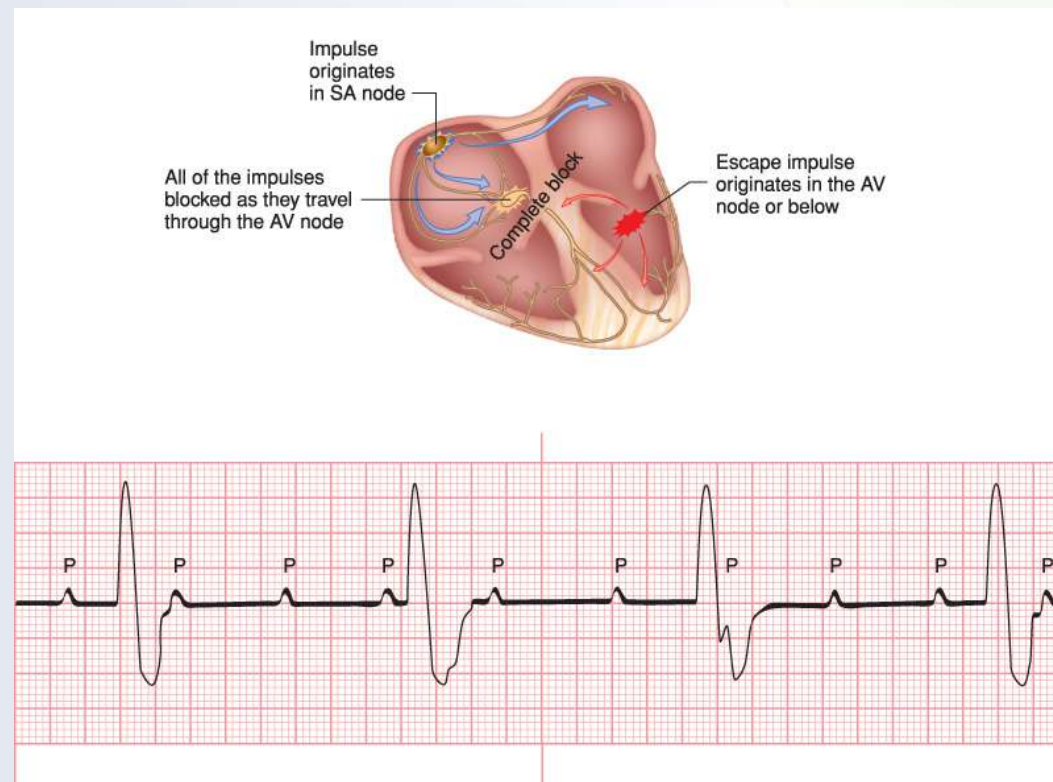
# Absent PR Intervals

- Occurs in atrial flutter and fibrillation and ventricular dysrhythmias



# Absent PR Intervals

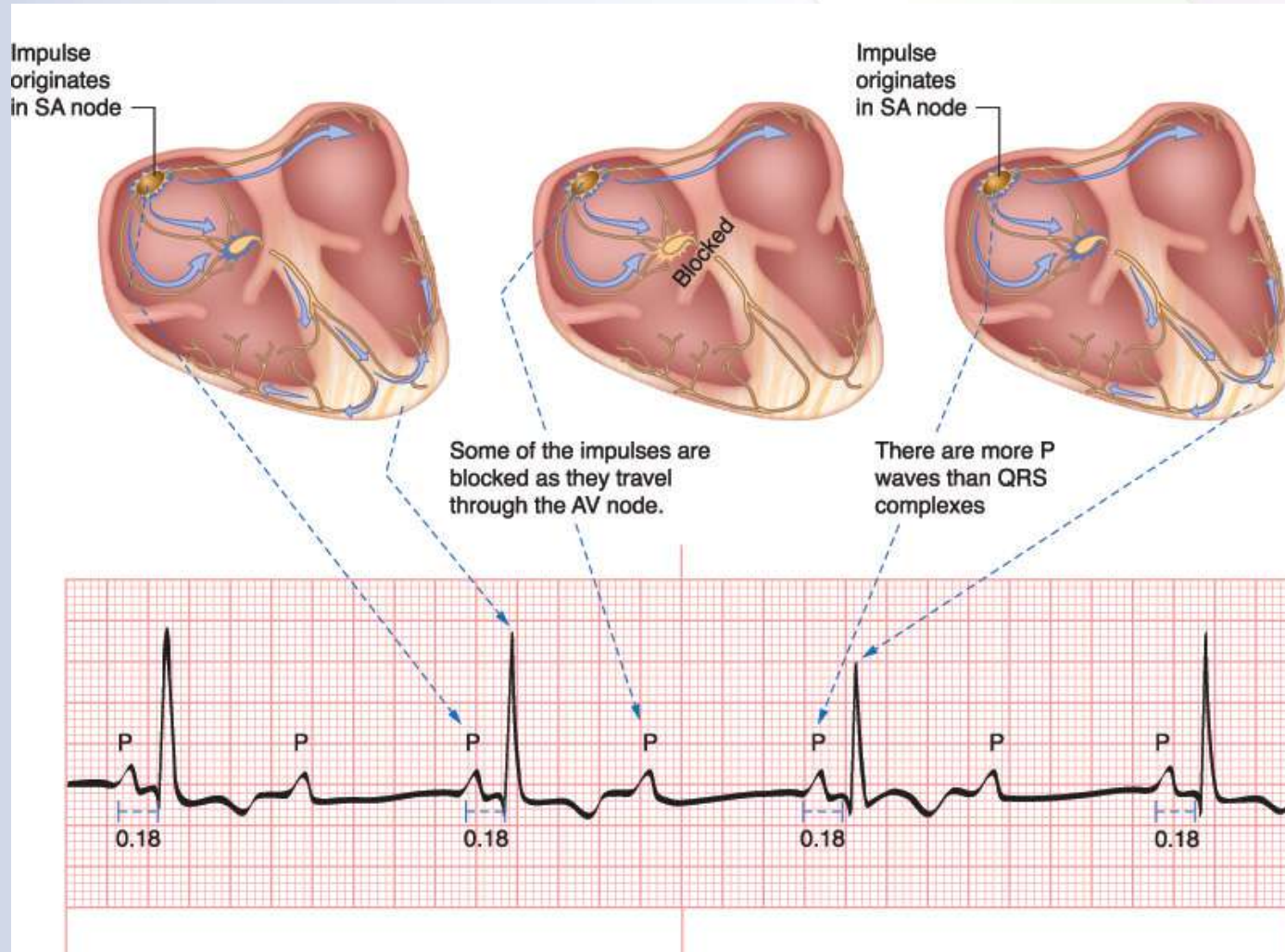
- In 3<sup>rd</sup>-degree AV heart block the PR interval is not measurable



# More P Waves and Constant PR Intervals

- In 2<sup>nd</sup>-degree AV heart block, Type II, some sinus beats are blocked in the AV node and do not reach the ventricles
- PR intervals associated with P waves that are conducted through to the ventricles are constant

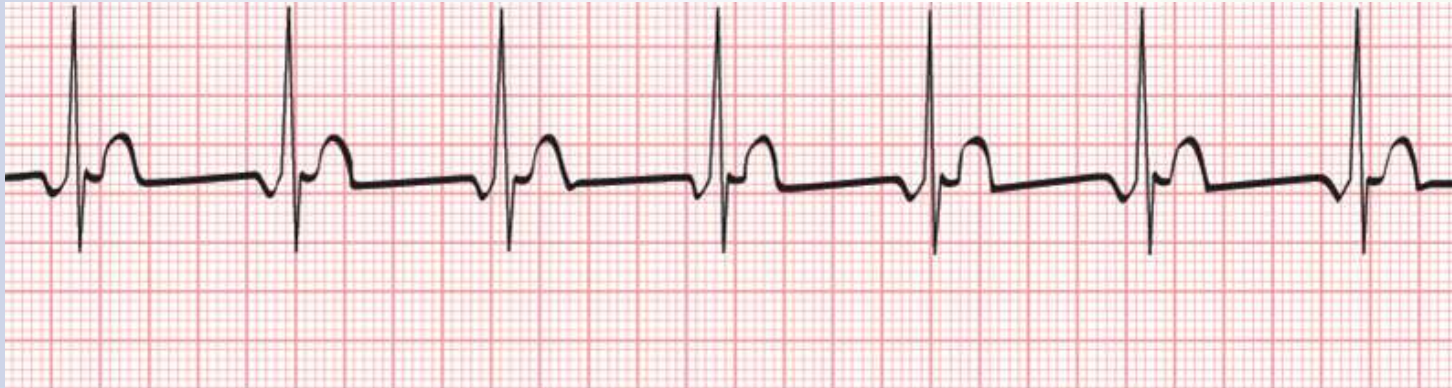
# More P Waves and Constant PR Intervals





# Practice Makes Perfect

- Determine the type of PR interval



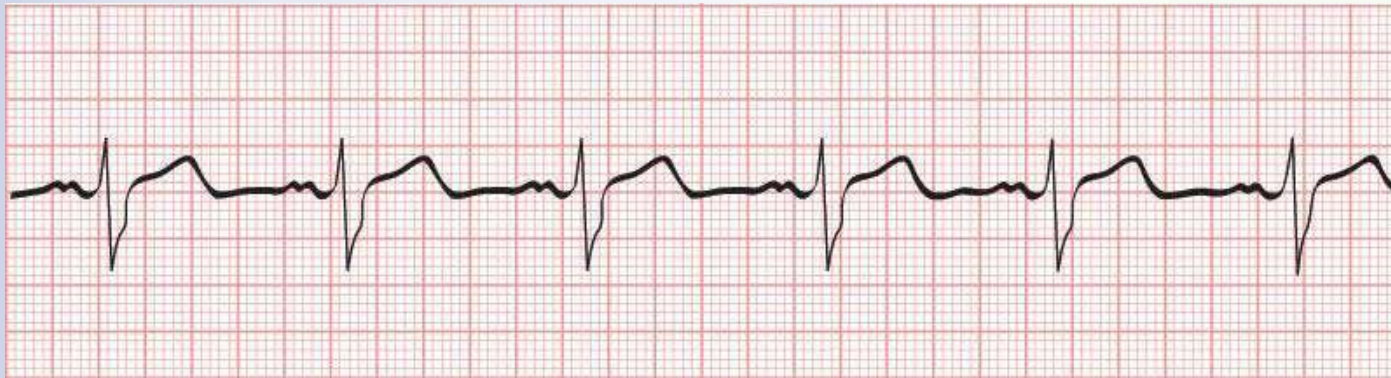
# Practice Makes Perfect

- Determine the type of PR interval



# Practice Makes Perfect

- Determine the type of PR interval



# Practice Makes Perfect

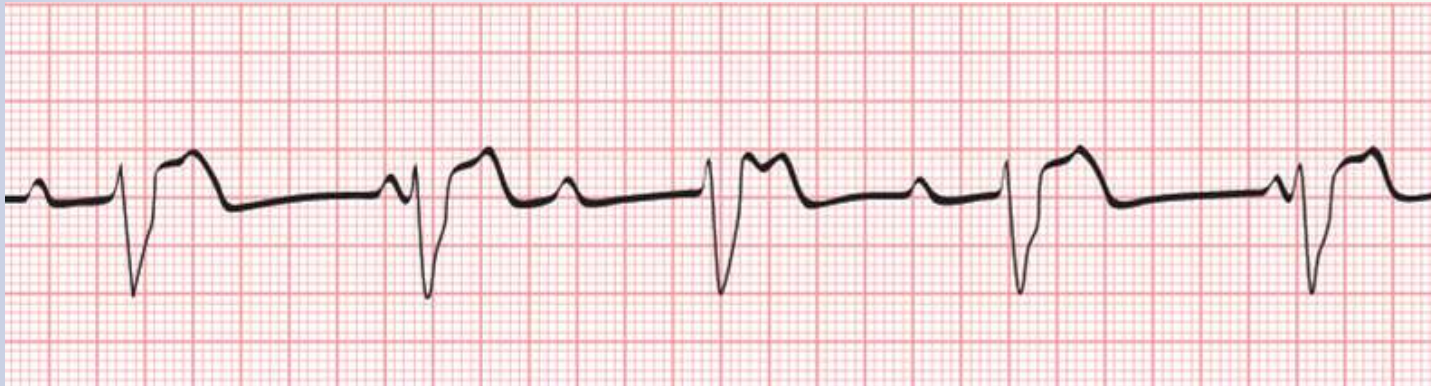
- Determine the type of PR interval





# Practice Makes Perfect

- Determine the type of PR interval



# Summary

- Fifth step of analyzing an ECG rhythm is examining the PR intervals.
- PR interval is the distance from the beginning of the P wave to the beginning of the Q wave.
- Duration of the PR interval is normally 0.12 to 0.20 seconds.
- PR intervals are considered abnormal if they are shorter, longer, absent or vary.

# Summary

- Shorter P'R intervals occur when the impulse originates in the atria close to the AV junction or in the AV junction itself.
- 1<sup>st</sup>-degree AV heart block is the most common cause of longer PR intervals.
- In wandering atrial pacemaker the pacemaker site moves from beat to beat causing the P' waves to appear different and the P'R intervals to vary.

# Summary

- In 2<sup>nd</sup>-degree AV heart block, Type I, PR intervals are progressively longer until a QRS complex is dropped and then the cycle repeats.
- There is an absence of PR intervals in atrial flutter and fibrillation, ventricular dysrhythmias.
- In 3<sup>rd</sup>-degree AV heart block the PR intervals are not measurable.



# Summary

- In 2<sup>nd</sup>-degree AV heart block, Type II, some of the sinus beats are blocked in the AV node and do not reach the ventricles. The PR intervals associated with the P waves that are conducted through to the ventricles are constant.