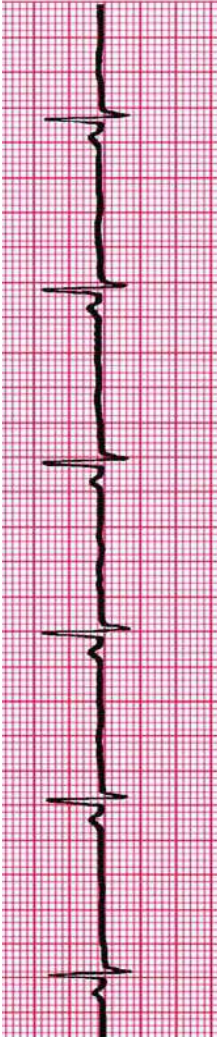
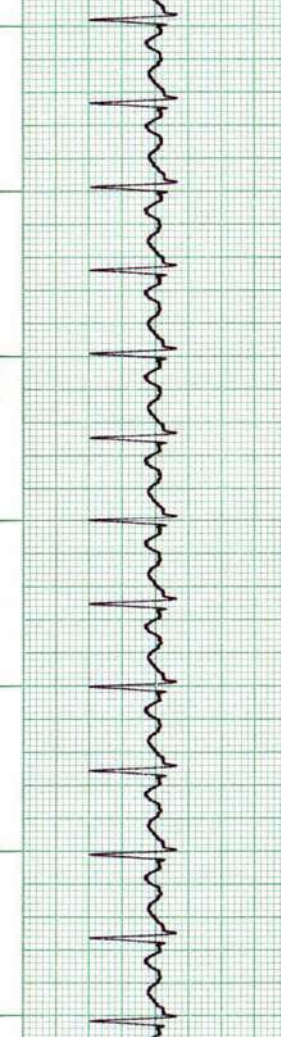
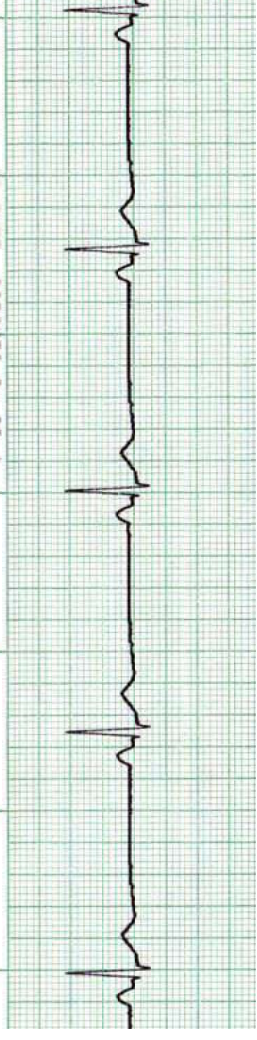
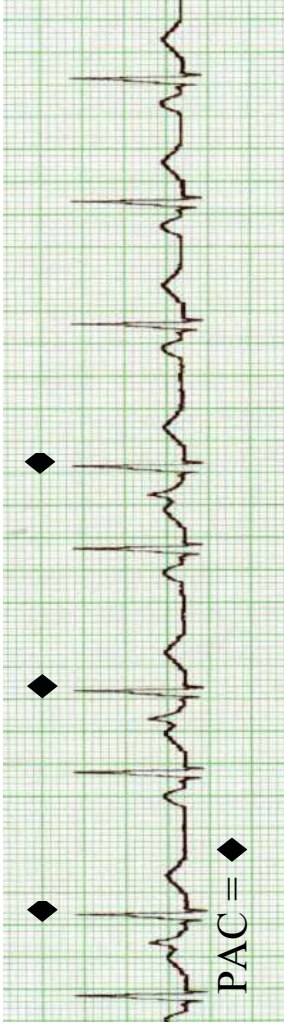
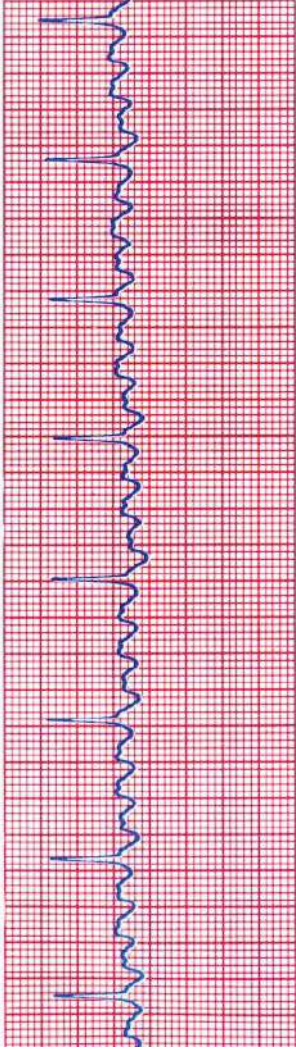
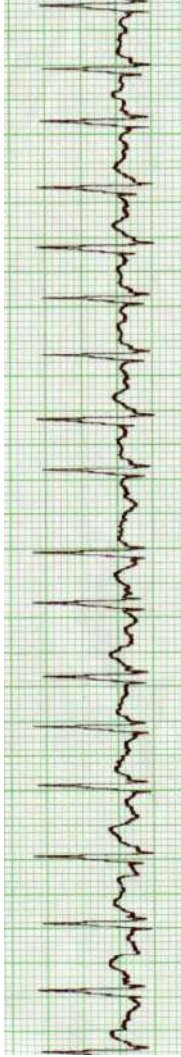
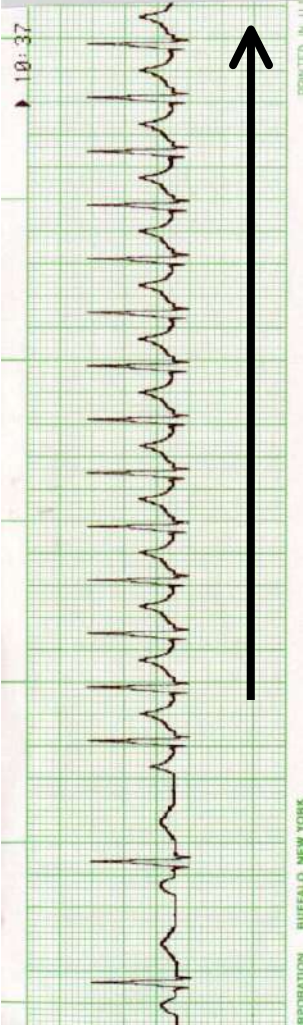
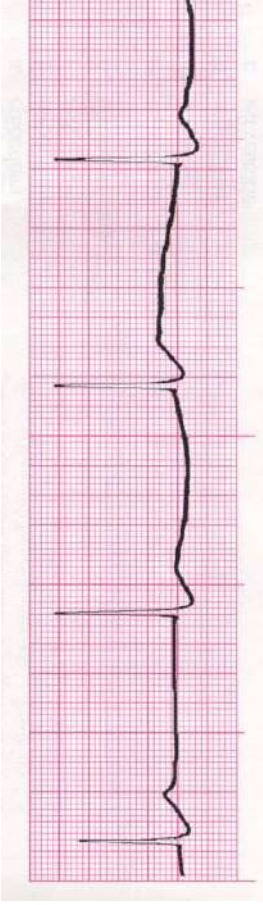
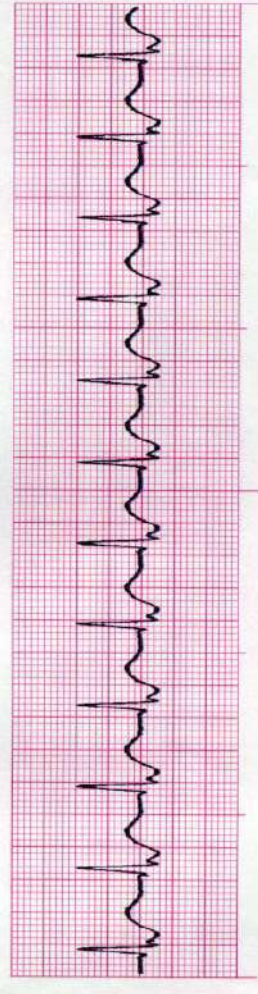
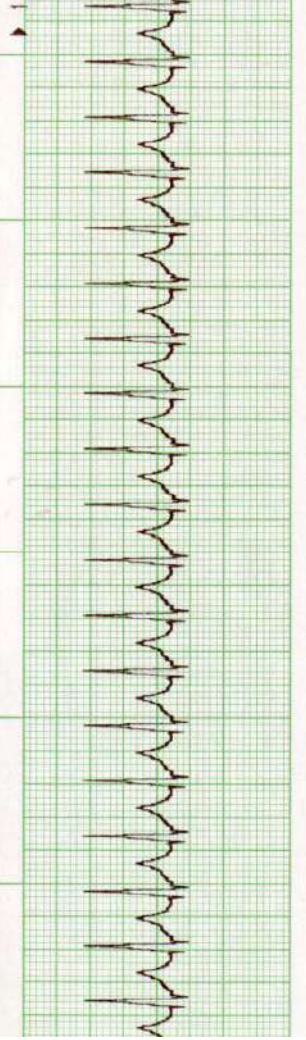
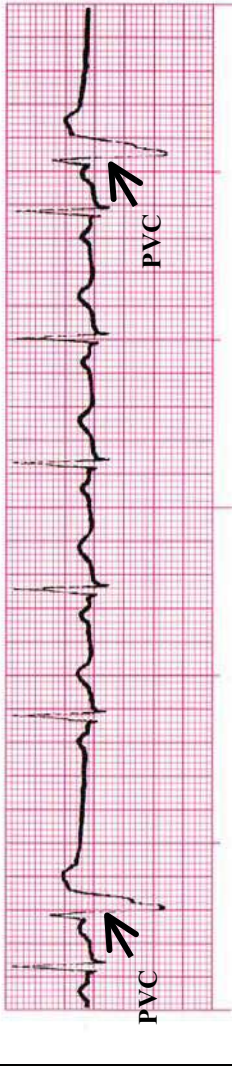


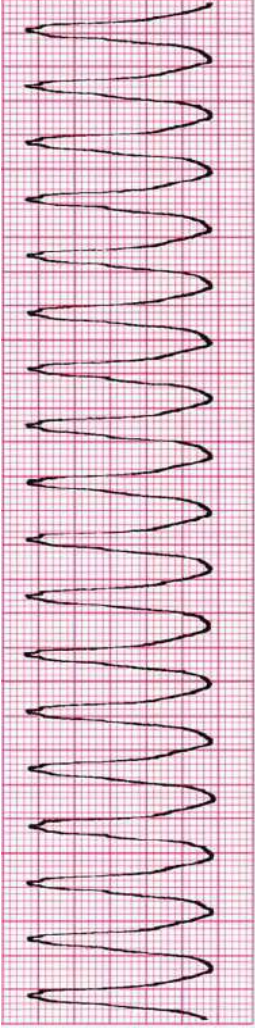
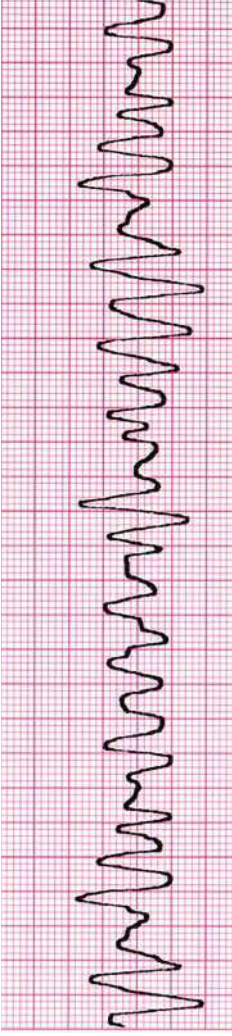
Rhythm	ECG Characteristics	Example
Normal Sinus Rhythm (NSR)	Rate: 60-100 per minute Rhythm: R- R = P waves: Upright, similar P-R: 0.12 -0 .20 second & consistent qRs: 0.04 – 0.10 second P:qRs: 1P:1qRs	
Sinus Tachycardia Causes: ☐ Exercise ☐ Hypovolemia ☐ Medications ☐ Fever ☐ Hypoxia ☐ Substances ☐ Anxiety, Fear ☐ Acute MI ☐ Fight or Flight ☐ Congestive Heart Failure	Rate: > 100 Rhythm: R- R = P waves: Upright, similar P-R: 0.12 -0 .20 second & consistent qRs: 0.04 – 0.10 second P:qRs: 1P:1qRs	
Sinus Bradycardia Causes: ☐ intrinsic sinus node disease ☐ increased parasympathetic tone ☐ drug effect.	Rate: < 60 Rhythm: R- R = P waves: Upright; similar P-R: 0.12 -0 .20 second & consistent qRs: 0.04 – 0.10 second P:qRs: 1P:1qRs	

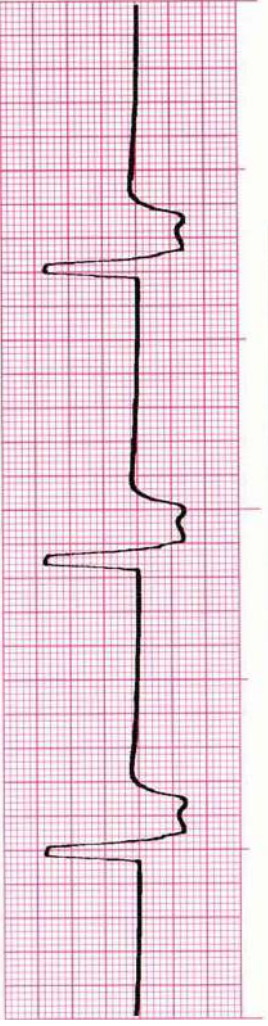
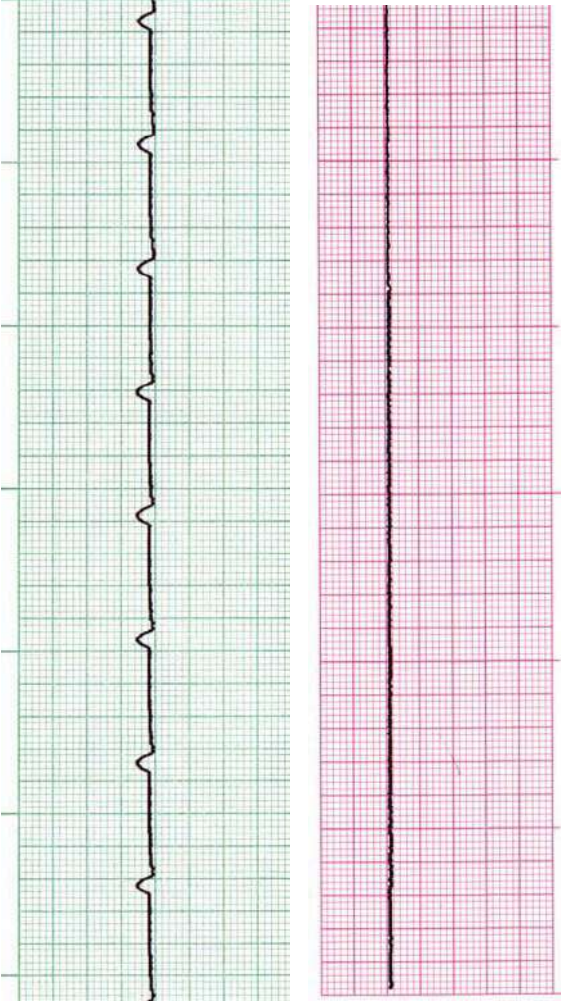
Synonym	ECG Characteristics	Example
Premature Atrial Contractions (PAC) Causes: ☐ normal ☐ excessive use of caffeine, tobacco, or alcohol ☐ CHF ☐ Myocardial ischemia or injury ☐ Hypokalemia, Dig toxicity ☐ COPD	Rate: usually < 100, dependant On underlying rhythm Rhythm: irregular P waves: Early & upright, different from Sinus PR: 0.12 – 0.20 second; different from Sinus qRs: 0.04 – 0.10 second P:qRs = 1:1	
Atrial Flutter Causes: ☐ ischemic heart disease ☐ Hypoxia ☐ Acute MI ☐ Dig Toxicity ☐ Mitral or Tricuspid valve disease ☐ Pulmonary embolism	Rate: Atrial rate 250-350 Vent 150 common Rhythm: Atrial = Regular Vent = Reg. or irreg P waves: Not identifiable F waves: Uniform (sawtooth or picket fence) not measurable PRI: not measurable qRs: 0.04 – 0.10 second	
Atrial Fibrillation ☐ Ischemic heart disease ☐ Hypoxia ☐ Acute MI ☐ Digitalis toxicity ☐ Mitral or tricuspid disease	Rate: Atrial: 400-700 Vent. 160-180/minute Rhythm: Atrial: irregular; Vent.: irregular P waves: No identifiable Ps f waves: may be seen. PRI: unable to measure (No identifiable P) qRs: usually normal	

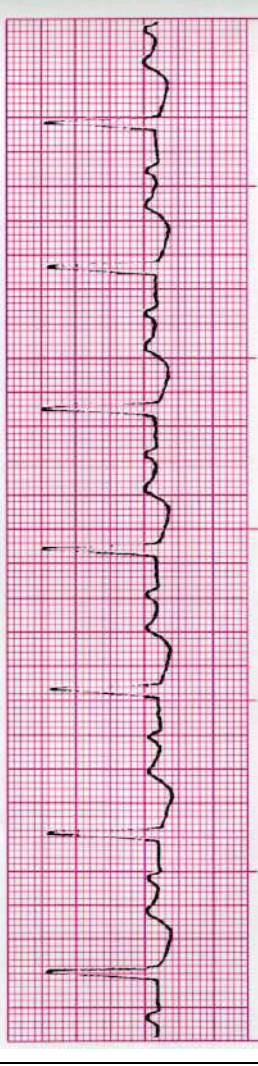
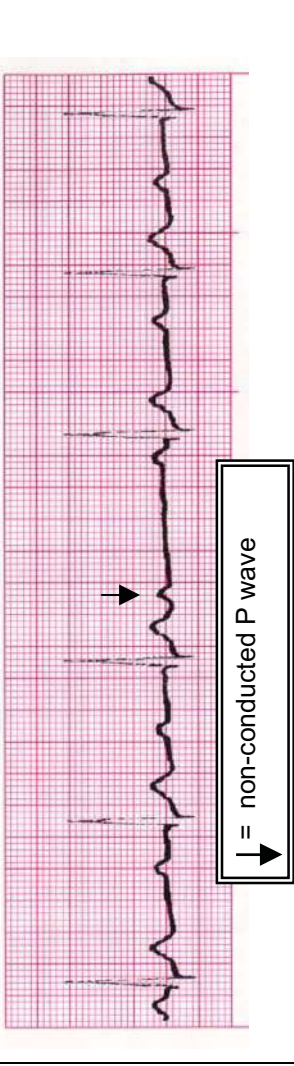
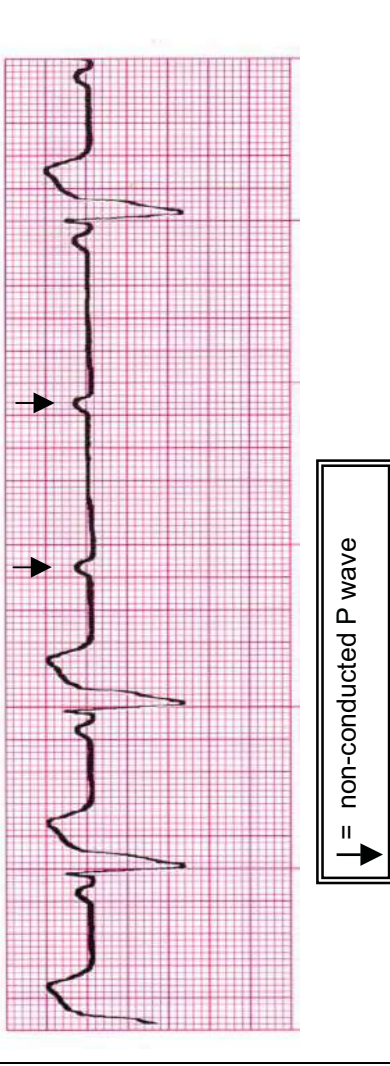
Name	ECG Characteristics	Example
Paroxysmal Atrial Tachycardia Causes: Same as PACs	Rate: usually 160-220 Rhythm: Regular P waves: differ in shape from Sinus Ps; usually difficult to identify (rate related) PR Interval: Normal when the Ps can be identified; short if WPW present qRs: usually normal Other: Onset sudden, often initiated by a PAC	
Premature Junctional Contraction (PJC) Causes: Same as PACs	Rate: usually < 100, dependant on the underlying rhythm Rhythm: irregular P waves: Inverted before or after qRs or not visible PR interval: < 0.12 second when inverted P is before qRs qRs: 0.04 – 0.10 second P:qRs = 1:1 if Ps are visible	

Synonym	ECG Characteristics	Example
Junctional escape Rhythm Causes: □ healthy athlete at rest □ related to medications- Beta Blockers, Calcium Channel Blockers, Digoxin Toxicity □ or increased parasympathetic tone □ Acute Inferior Wall MI □ Rheumatic Heart Disease □ Post-Cardiac Surgery □ Valvular Disease □ SA Node Disease □ Hypoxia	Rate: 40-60 61 – 100 (accelerated) Rhythm: Regular P waves: Inverted before or after qRs or not visible PR interval: < 0.12 second when inverted P is before qRs qRs: 0.04 – 0.10 second P:qRs 1:1 if Ps are visible	
Junctional Tachycardia Causes: □ Same as Paroxysmal Atrial Tachycardia (PAT)	Rate: 101-200 Same as Junctional Escape Rhythms.	
Supraventricular Tachycardia (SVT) An umbrella term used when unable to distinguish which rhythm is present. Causes: Same as Sinus, Atrial, and Junctional Tachycardia, and Atrial Flutter	Rhythm: Absolutely regular Rate: > 150 per minute P Waves: Not visible (PRI not measurable) qRs: normal 0.04 – 0.10 sec	

Synonym	ECG Characteristics	Example
Premature Ventricular Complex (PVC) Causes: ☐ Gastric overload ☐ Stress ☐ Caffeine, Alcohol, Nicotine ☐ Heart Disease ☐ Acid-Base Imbalance ☐ Electrolyte Imbalance ☐ Cyclic Antidepressants ☐ Hypoxia ☐ Acidosis ☐ Acute MI	Rate: Dependent upon underlying rhythm Rhythm: R – R ≠ P waves: Usually absent, if present, not associated with PVC qRs: 0.12 second or greater; bizarre and notched ST & T: Often opposite in direction to the qRs. Timing One on a strip = Rare One in a row = Isolated Two in a row = Pair, couplet Three in a row = V Tachycardia Pattern Every other = Bigeminy Every third = Trigeminy Morphology Similar shape = Uniformed Different shape = Multiformed Location R – on – T = PVC falls on the T wave of the complex before the PVC	

Name	ECG Characteristics	Example
Ventricular Tachycardia Causes: □ Same as PVCs □ R on T Phenomenon	Rate: > 100 per minute and usually not > 220 Rhythm: Usually regular P Waves: Ø P waves or if present, not associated with qRs qRs: Wide (≥ 0.12 sec), bizarre ST/T wave: Opposite direction of qRs A group of three PVCs in a row or more at a rate greater than 100/minute or more constitutes Ventricular Tachycardia.	
Ventricular Fibrillation Causes: □ Acute Myocardial Infarction □ Untreated Ventricular Tachycardia □ Hypothermia □ R-on-T PVCs □ Electrolyte imbalance □ Electrical shock	Rate: Ø Rhythm: Ø regularity, chaotic undulating waves P Waves: Ø qRs: Ø ST/T Wave: Ø Organized activity: Ø No Cardiac Output or Pulse	

Name	ECG Characteristics	Example
Idioventricular Rhythm Causes: ❑ Myocardial Infarction ❑ Digitalis toxicity ❑ Metabolic imbalances ❑ Post resuscitation rhythm	Rate: 20-40 per minute Rhythm: R – R = P waves: No P waves associated to qRs qRs: > 0.12 sec, notched, bizarre appearance ST/T : Opposite direction of qRs Rate > 40 to 100 = Accelerated	
Asystole Causes: ❑ Extensive myocardial damage ❑ Acute respiratory failure ❑ Ischemia or Infarction ❑ Traumatic cardiac arrest ❑ Ventricular aneurysm ❑ Countershock ❑ Hypoxia, Hypothermia ❑ Hyperkalemia, Hypokalemia ❑ Preexisting acidosis ❑ Drug overdose	Rate: Ventricular rate = 0 Rhythm: Ø unless Ps are present, then regular or irregular P waves: may be present qRs: Ø P:qRs Ø	

Knytnm	ECG Characteristics	Example
1st degree AV Block	◆ 1P : 1 qRs ◆ Prolonged PRI (> 0.20 sec not > 0.40 sec)	
2nd degree AV Block, Type I	◆ More P waves than qRs ◆ PRI progressively increases in a cycle until P appears w/o qRs. ◆ Cyclic pattern reoccurs ◆ $R - R \neq$	 ↓ = non-conducted P wave
2nd degree AV Block, Type II	More P waves than qRs ◆ PRI consistent ◆ qRs normal or wide (bundle branch block) ◆ $R - R \neq$ or $R - R =$	 ↓ = non-conducted P wave

Knyunm	ECG Characteristics	Example
3rd degree AV Block	◆ More P waves than qRs ◆ P not r/t qRs (P too close, P too far) ◆ PRI varies greatly ◆ qRs normal or wide ◆ R – R =	