

ECG Interpretation

Area of Heart	Leads	Artery
Anterior	V1-V4	Left Anterior Descending (Anterior Interventricular Artery)
Lateral (Left)	I, aVL, V5, V6	Left Circumflex Artery
Inferior	II, III, aVF	Posterior Interventricular Artery

Chest Leads: V1: Right side sternum 4th ICS; **V2:** Left side sternum 4th ICS; **V3:** between V2 and V3; **V4:** 5th ICS, L MCL; **V5:** 5th ICS, L AAL; **V6:** 5th ICS L MAL.

Features of the ECG Printout

- Large square: 0.2s, small square: 0.04s. Normal heart rate: 3-5 large squares, normal PR interval 3-5 small squares, normal QRS complex <3 small squares (<0.12s)
- QRS: R>S: depolarisation towards lead; R=S: depolarisation perpendicular to lead; R<S: depolarisation away from lead

A System for Interpretation

- **Identification:** Patient details and date
- **Rate:** Use rhythm strip, multiply QRS complexes by 6
- **Rhythm:** regular/irregularly irregular/regular irregular, Each P wave followed by a QRS complex?
- **Axis:** Lead I and II. Both predominantly upwards: normal. Lead I up, Lead II down: Leftward shift (Leaving each other) Lead I down, Lead II up: Rightward deviation (**R**eturning to each other)
- **P Wave:** Is the P wave present or absent?
- **PR Interval:** Should be 3-5 small squares (0.12-0.2s). >0.2s suggests heart block
- **QRS Complex:** Tall? Wide?, should be less than 1/2 a big square
- **ST Segment:** elevation or depression? >1 small square in limb, >2 small squares in chest leads.
- **Q waves:** Can be normal, deep or wide (>25% QRS height)? abnormal: previous MI

Features of Key Pathological Changes

- **Atrial Fibrillation**
 - Typically Tachycardic
 - Irregularly irregular rhythm
 - Absence of P waves
 - No baseline discernible
- **Ventricular Tachycardia**
 - Tachycardia
 - Very broad QRS complexes (>160 ms)
 - AV dissociation (P and QRS complexes out of sync)
- **Ventricular Fibrillation**
 - High Rate (150-500/min)
 - Chaotic irregular deflections
 - No identifiable P waves, QRS complexes or T waves
- **STEMI**
 - ST Elevation in distribution of obstructed/involved artery
 - Progressive development of Q waves in same leads
 - Reciprocal ST depression: Anterior (III, aVF), Lateral (III, aVF), Inferior (aVL, I)
- **NSTEMI**
 - ST segment depression
 - Flattening or inversion of T waves