Cardiac Diseases Detectable by ECG

1. Arrhythmias (Heart Rhythm Disorders)

- Atrial Fibrillation (AFib): Irregularly irregular rhythm, no distinct P waves

- Atrial Flutter: Sawtooth flutter waves

- Ventricular Tachycardia: Wide QRS, fast rate

- Ventricular Fibrillation: Chaotic, disorganized waves

- Bradycardia: Slow heart rate, long R-R intervals

- Tachycardia: Fast rhythm, short R-R intervals

- PACs/PVCs: Early, abnormal P or QRS waves

2. Myocardial Ischemia and Infarction

- STEMI: ST elevation in specific leads

- NSTEMI: ST depression, T-wave inversion

- Ischemia: Transient ST changes, T-wave flattening

3. Electrolyte Imbalances

- Hyperkalemia: Peaked T waves, wide QRS

- Hypokalemia: U waves, flattened T

- Hyper/Hypocalcemia: QT interval shortened/prolonged

4. Heart Blocks (Conduction Abnormalities)

- First-degree AV Block: PR > 200ms
- Second-degree AV Block:
  - Mobitz I: Progressive PR lengthening, dropped QRS
  - Mobitz II: Fixed PR with sudden QRS drop
- Third-degree Block: No relation between P waves and QRS

5. Ventricular Hypertrophy

- LVH: Tall R in V5/V6, deep S in V1

- RVH: Dominant R in V1

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6. Pericarditis

- Diffuse ST elevation, PR depression

7. WPW Syndrome

- Delta wave: Slurred upstroke of QRS, short PR

8. Long QT Syndrome

- Prolonged QT interval: risk of Torsades de Pointes

9. Other Possibilities Not Always Seen on ECG

- Structural heart diseases (valve defects, congenital defects)
- Mild/intermittent ischemia
- Cardiomyopathies (better seen with echocardiogram/MRI)