Arrhythmias

- Arrhythmia - 1 region of the heart out of step with another

- Normal Heart beat:
  - Starts in SA node (dispersed zone of pacemaker cells)
  - If heart beat originates elsewhere, result of:
    - Abnormal pacemaking (automacity) (ectopic foci - other pacemaker areas)
    - Failure of conduction to stop at the end of a heart beat (reentry)
  - Caused by localised slow conduction
  - Wave-front meander and become ragged
  - Wave-front may split into two
  - May then circle around and re-enter its original pathway

- Re-entry can initiate an arrhythmia if injury (ischaemia) causes localised slow conduction

![Diagram of slow wave propagation and re-entry]

- Middle diagram: Slower wave working through injury can reactivate the faster 2 waves which in turn can reactivate the slower wave (after their respective refractory periods)

Atrial Arrhythmias

- ---\(\rightarrow\) 50-100 bpm
- ---\(\rightarrow\) 250-350 bpm
- ---\(\rightarrow\) 350-600 bpm

Ventricular Arrhythmias

- Ventricular Tachycardia can lead to Ventricular Fibrillation
- Fibrillation doesn't allow blood to flow properly \(\rightarrow\) end organ hypoxia and ischaemia etc.