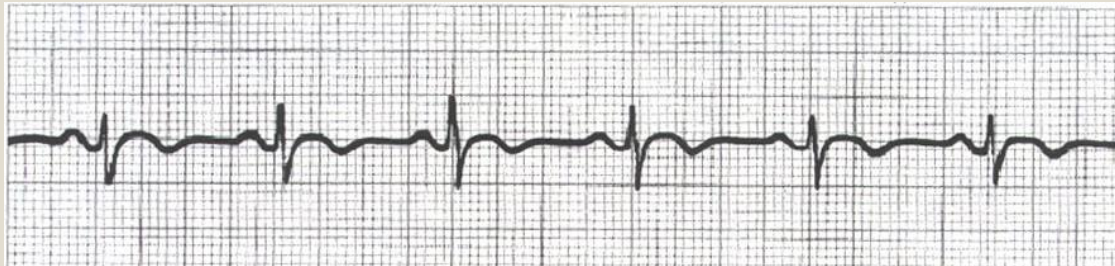


ECG'S



By Janet Hollier

Overview



- REMEMBER an ECG is only one diagnostic tool. Patient history, observations and appearance are often better indicators.
- Quality of the ECG is paramount. Accurate interpretation is only possible if the ECG recording is of a high standard.

Poor quality
ECG faxed to
AHG for
interpretation

At least 20% of
ECG's faxed
through to AHG
are difficult to
interpret or need
repeating



Prepare skin carefully

Shave if hirsute

Cleanse and dry skin if sweaty

If skin very dry and flakey clean and abrade gently with textured cloth or paper towel

Clean skin if moisturiser used.



Products used at AHG for good skin preparation



When taking an ECG

**Patient position –
lie patient as flat
as possible. Ensure
they are not
twisted on their
side**

Eliminate static

Relax Patient

Relax patient!



**Baseline straight
(isoelectric line)**





ECG Lead Placement

RA and LA on the clavicles

RL and LL at the base of the ribs

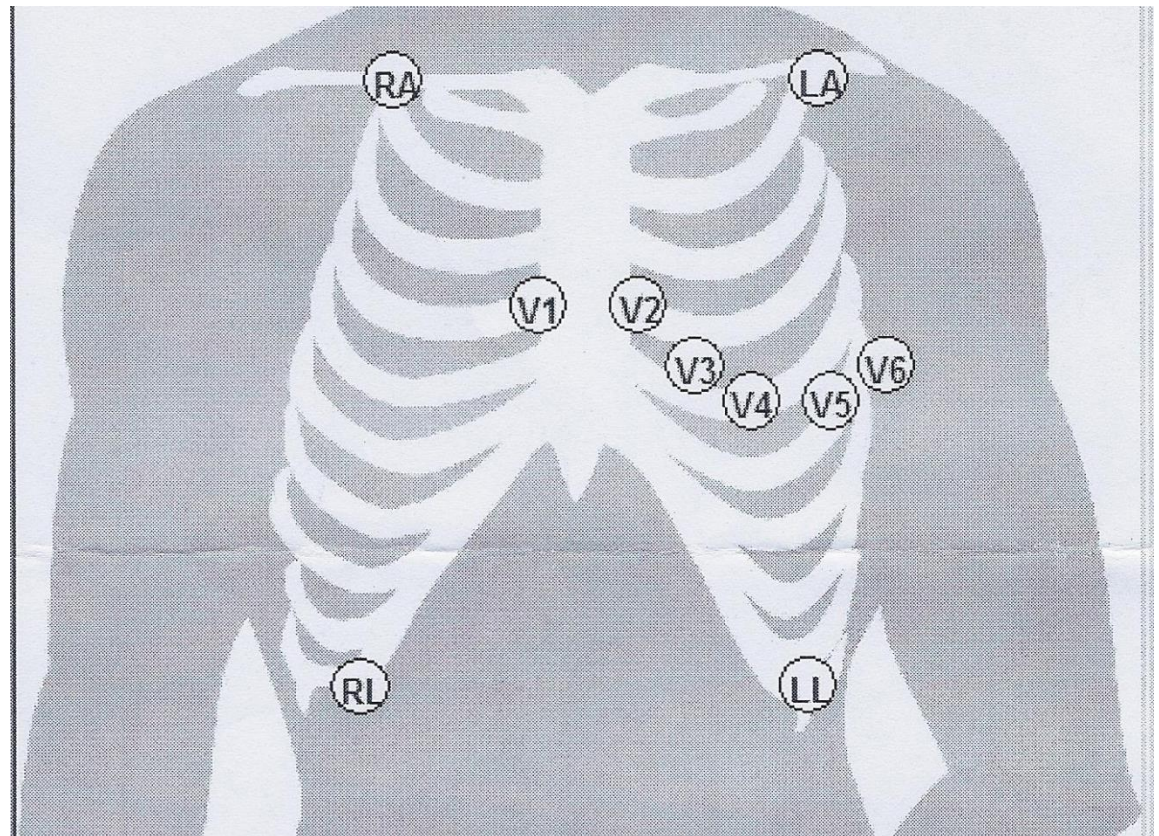
Chest Leads - feel below the clavicle this is the first intercostal space, count down to the 4th intercostal space and either side of the sternum is V1 and V2

Mid clavicular on the (L) at the 5th intercostal space is V4

V3 is between V2 & V4

V5 is at Anterior Axilla on same level as V4

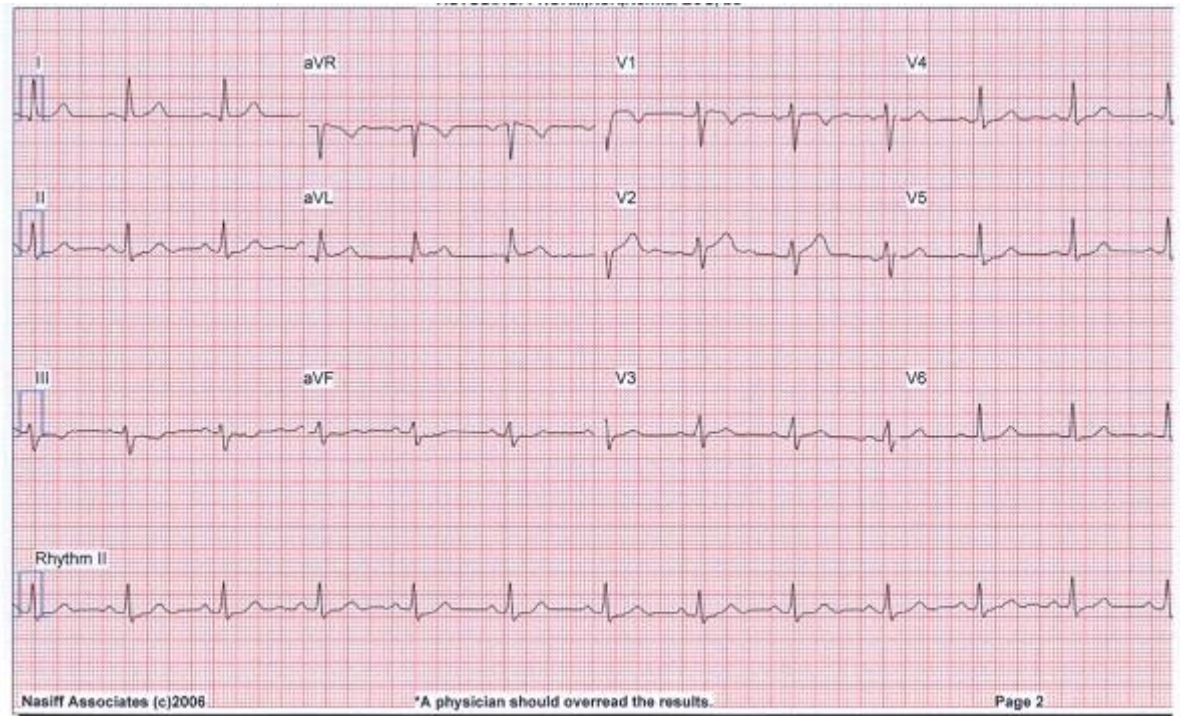
V6 is mid Axilla on the same level as V5



Correct ECG Lead Position

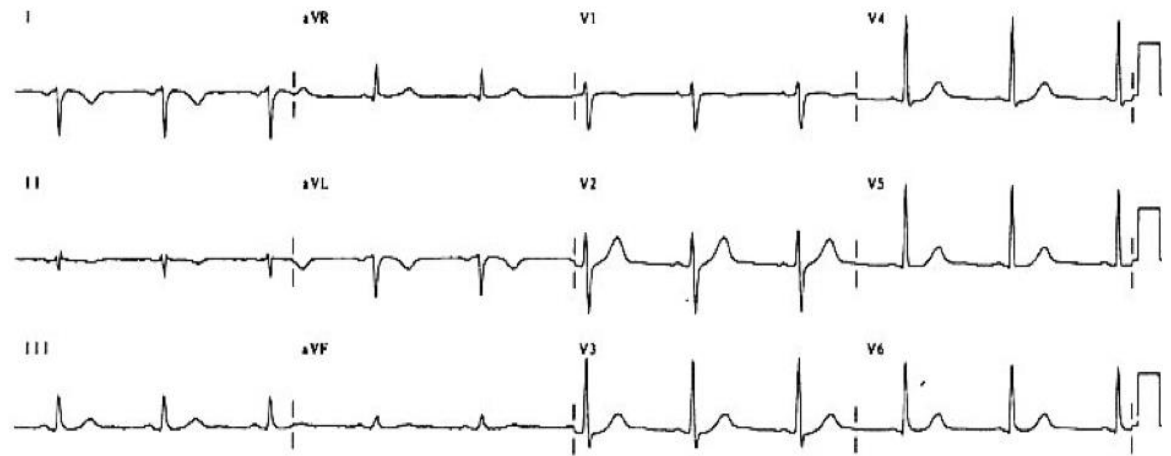
**Ideally Set ECG
format at 3 x 4 &
RII**

- Normal ECG



**Before you
disconnect the
patient check for
crossed leads**

**AVR should be
predominantly
negative**



**AVR is positive indicating crossed limb
leads**

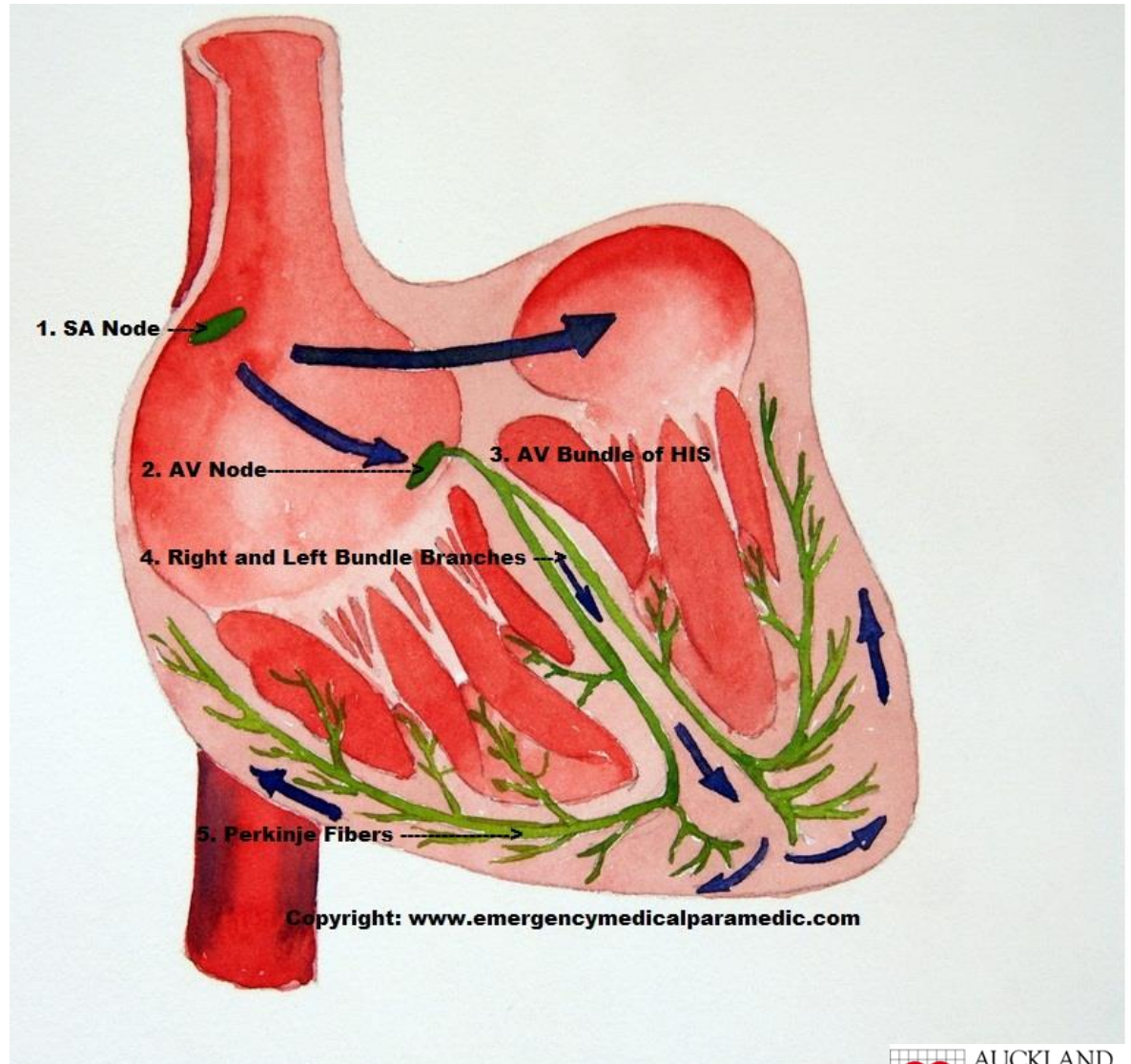
Normal Conduction through the heart

An impulse arises from the Sino Atrial Node and travels through both Atria stimulating them to contract. **P WAVE**

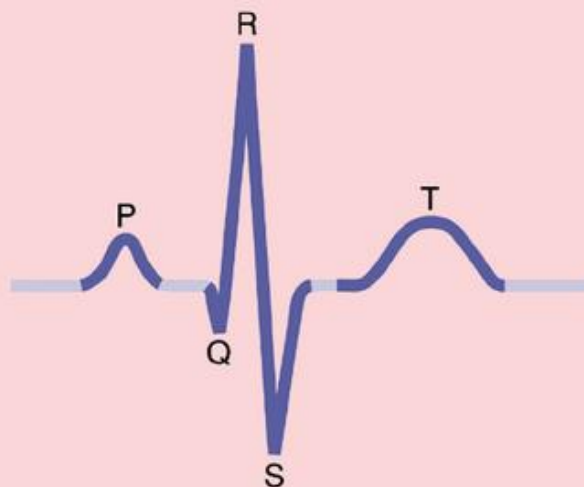
It pauses in the AV node **PR INTERVAL** then travels via the bundle of his to the Right and Left bundle branches .

The impulse then travels through the ventricles via the perkinje fibres. **QRS**

The heart then repolarises **T WAVE**



How the conduction through the Heart is shown on an ECG



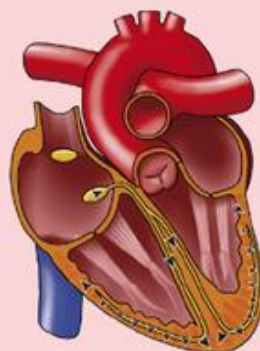
P wave

QRS complex

T wave



Atrial activation



Ventricular activation



Recovery wave



AUCKLAND
HEART
GROUP

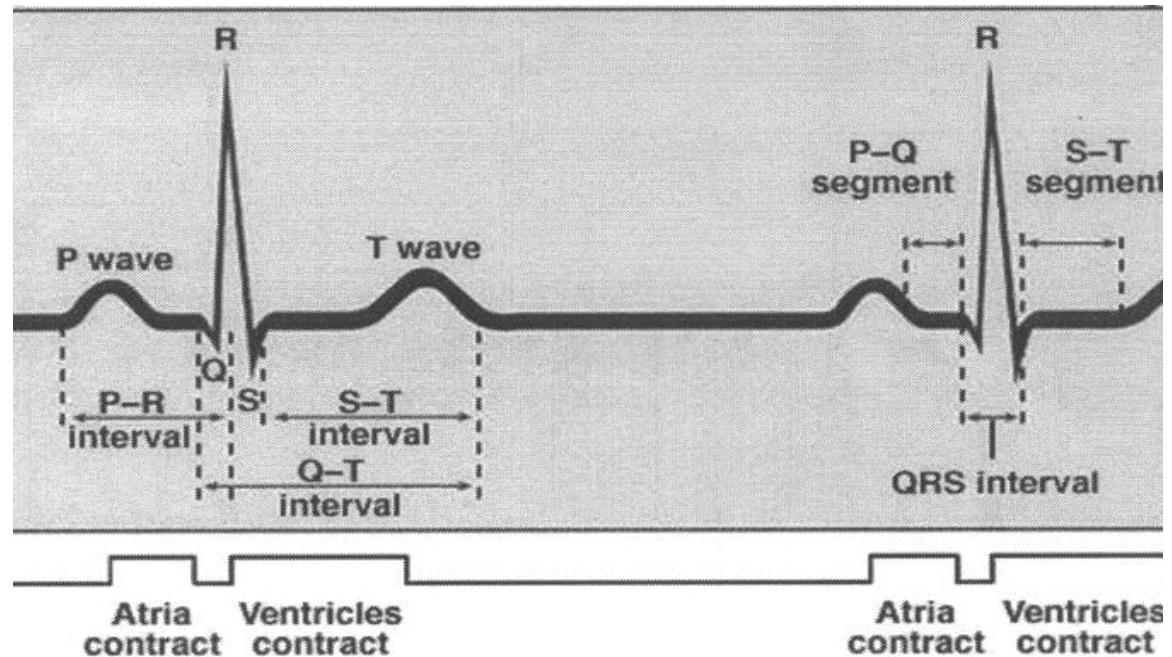
If you can identify the normal then abnormal becomes clearer

Look at the Lead II rhythm strip at the bottom of the ECG to determine if the patient is in sinus rhythm.

It should be regular with a P wave preceding every QRS followed by a T wave.

On an ECG you measure time on the horizontal axis (every small square is 0.04second and each large square is 0.2 second)

The height of the wave indicates voltage



Normal ECG Complex



Rate Calculation



Regular rhythm: for every large square between the R waves count down : 300,150,100, 75, 60, 50.
Or divide the number of small squares between the R waves into 1500 or large squares into 300



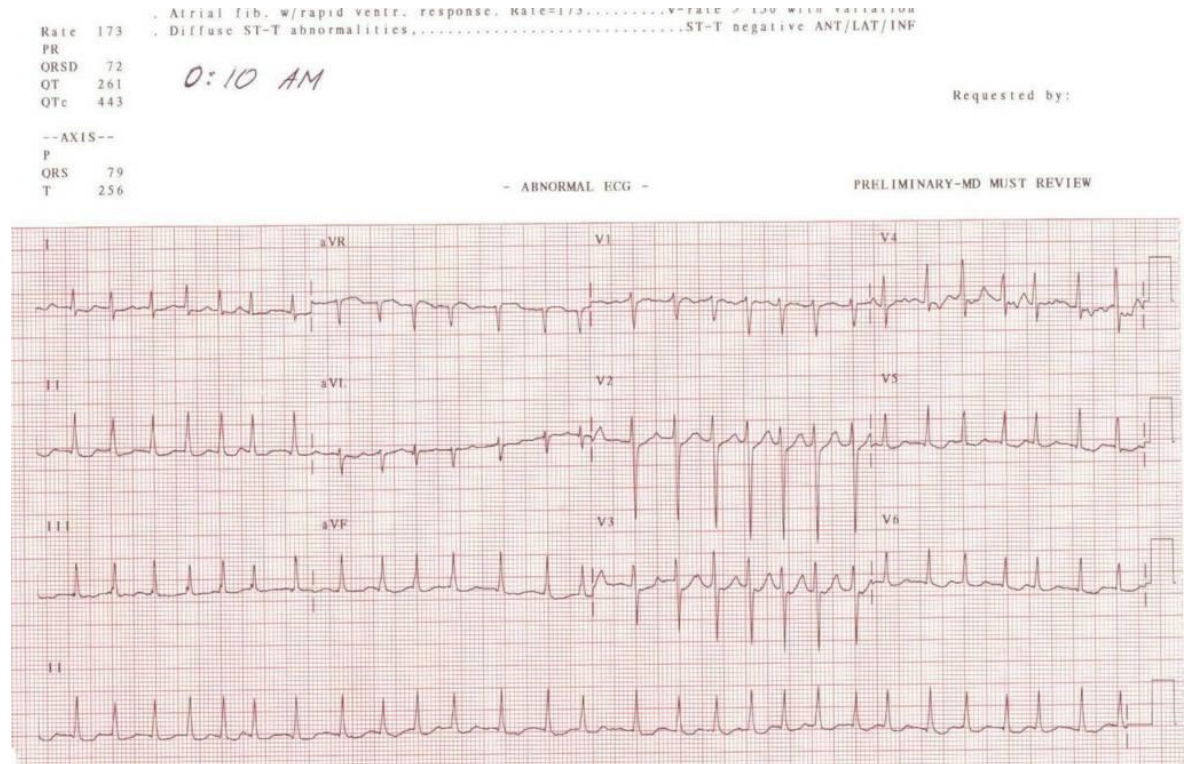
Irregular rhythm : measure 6 second strip and count up the number of ventricular beats (QRS's) and multiply by 10



ECG's that are
cause for concern
and should be
shown to a Dr
ASAP

Patients can
become very
symptomatic if the
ventricular rate is
too fast

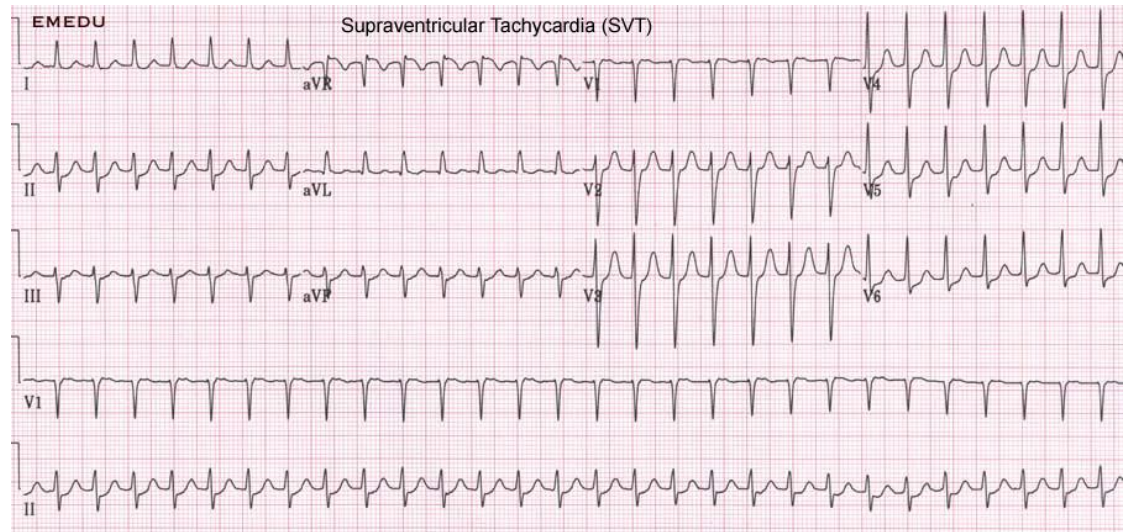
- Rapid Atrial Fibrillation



ECG's that are
cause for concern
and should be
shown to a Dr
ASAP

Any rapid tachycardia
as the patient will soon
become symptomatic if
they aren't already.

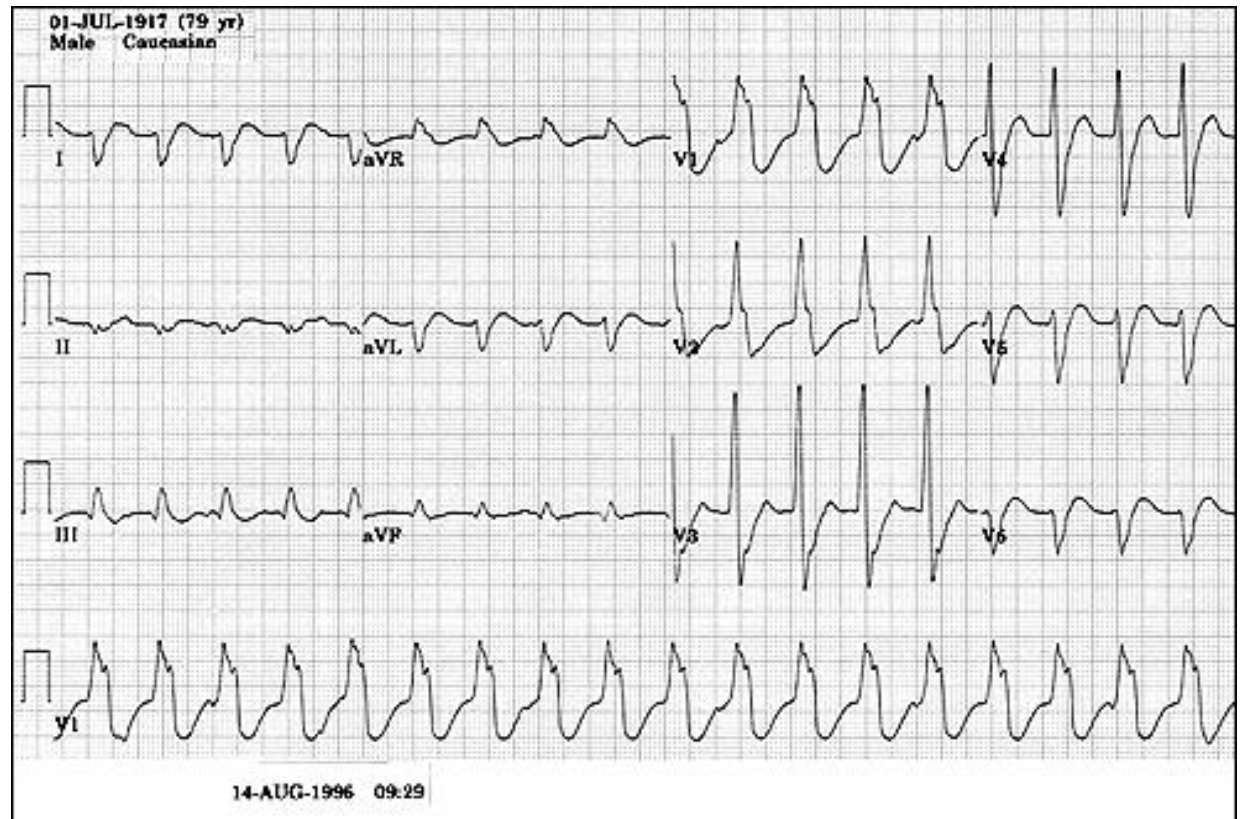
Supra Ventricular Tachycardia (SVT)



ECG's that are
cause for concern
and should be
shown to a Dr
ASAP

**Any broad complex
tachycardia**

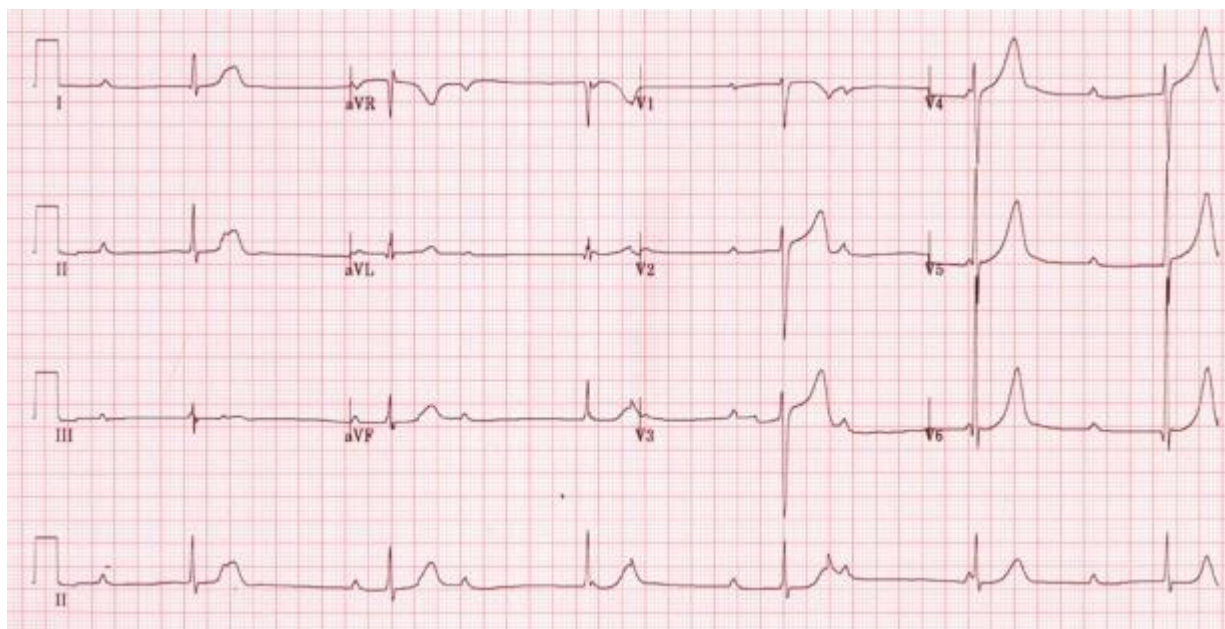
Ventricular Tachycardia



ECG's that are
cause for concern
and should be
shown to a Dr
ASAP

Any Bradycardia where
the patient is
symptomatic

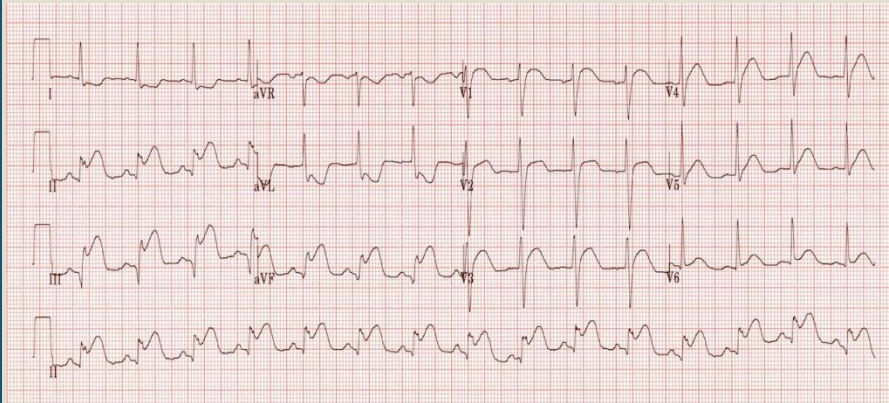
Complete Heart Block



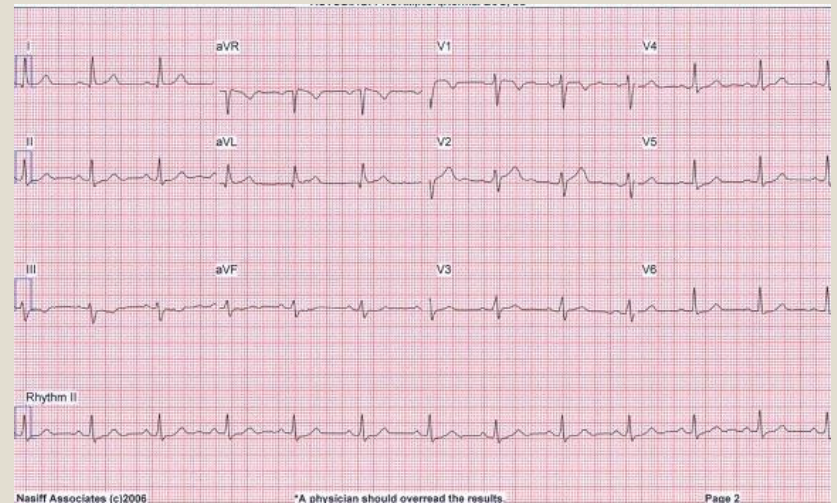
ECG's that are cause for concern and should be shown to a Dr ASAP

Any ST elevation seen on an ECG providing the patient is not in LBBB

Inferior ST Elevation MI



Normal ECG



Check to see if the Patient has Left Bundle Branch Block (LBBB)

LBBB causes the ECG to be uninterpretable for ischaemia or infarction

A very wide negative V1 with widespread ST and T Wave changes that are not significant for ischaemia



Left Bundle Branch Block (Ignore ST Changes in this rhythm)

IN SUMMARY



- In the 15 mins allocated I hope you have learned to:
- Take an ECG that is easily interpreted to ensure prompt and appropriate action for your patients
- Identify the ECG's that require immediate action
- Look at your patient – no matter what the ECG looks like, if they are symptomatic seek help