ECG’S

By Janet Hollier
• 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
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: Atrial activation
- QRS complex: Ventricular activation
- T wave: Recovery wave
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 0.04 second and each large square is 0.2 second)

The height of the wave indicates voltage
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.
ECG’s that are cause for concern and should be shown to a Dr ASAP

Any broad complex 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