NURSING STANDARD
QUICK REFERENCE GUIDE 4

A monthly series of quick reference guides to some of the basic tools of nursing. Whether you are a student nurse, need to update your skills or are teaching others, the guides will be a useful aid to your practice

Electrocardiography

Critical care nurses regard the ECG recording as an essential diagnostic tool for the immediate assessment of patients suffering from chest pain and for the routine screening of cardiac pathologies. In the same way, general nurses should perceive the ECG as another means of expanding their scope of professional practice which benefits the patients in their care

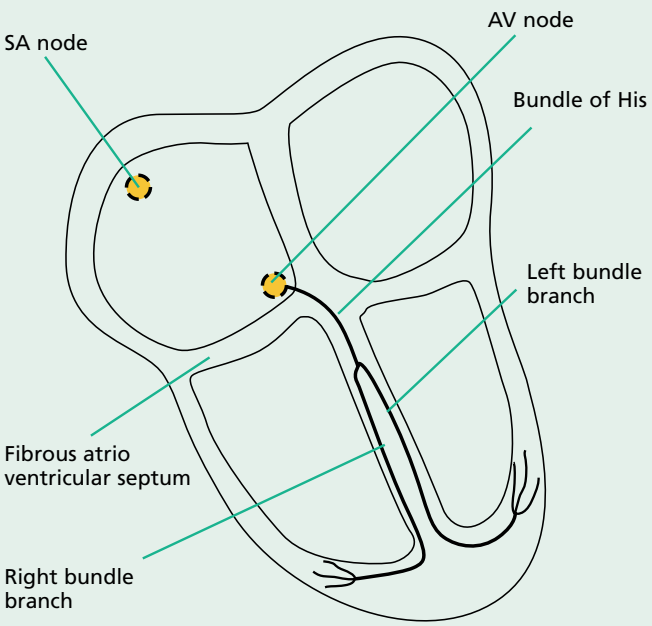
NORMAL ELECTROPHYSIOLOGY OF THE HEART

A specialised electrical conducting system in the heart ensures an orderly contraction so that the heart can act as an efficient pump. Below the right atrium is the sinoatrial (SA) node, an area of specialised muscle fibres that propagates the heart's contraction stimulus. It has the ability, in the absence of external stimuli, to initiate electrical impulses at a rate of approximately 100 per minute. Other areas of the heart also possess this ability, called automacity (Nash and Nahas 1996), but because the SA node produces the fastest rate, it assumes the role of pacemaker.

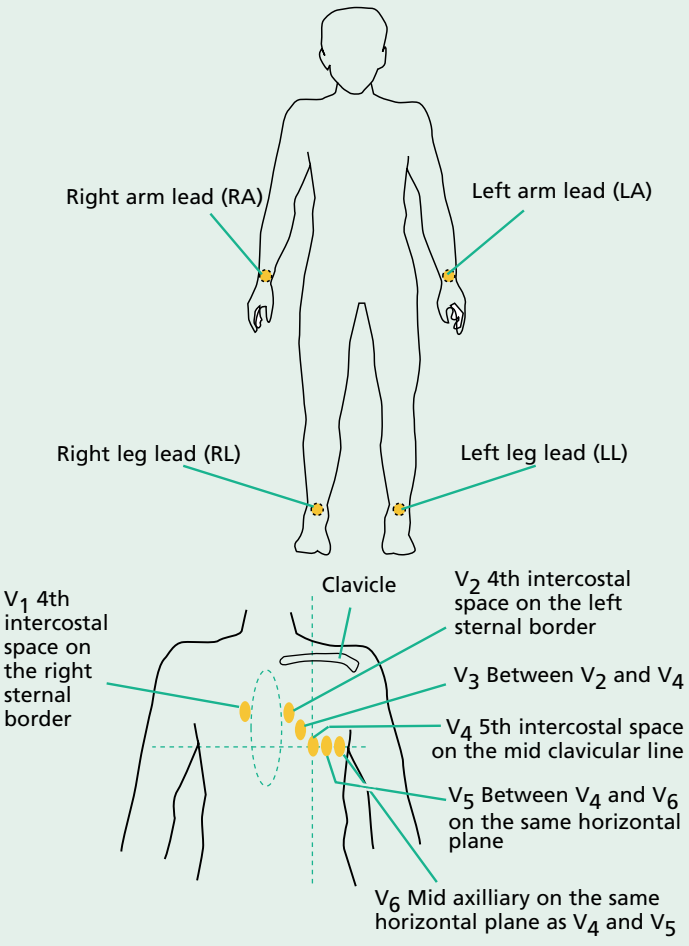
RECORDING THE ECG

When taking an ECG recording, either via a monitor or ECG machine, electrodes are applied to the patient at strategic points. These allow several different recordings to be taken, as seen in the 12 lead ECG, giving the operator different views of the heart.

Conducting system of the heart



Lead positioning



Electrocardiography

CONVERTING THE HEART'S CONTRACTIONS INTO THE ECG

Four components of the heart's contractions can be detected on the electrocardiogram. These are:

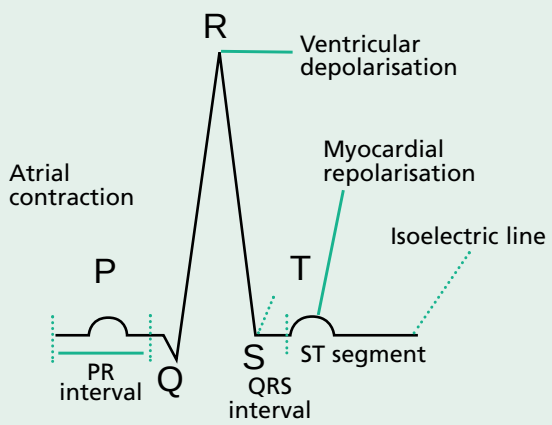
The P wave - representing the atrial contraction.

The PR interval - this is the time required for the impulse to pass the AV node, the bundle of His and cause ventricular contraction.

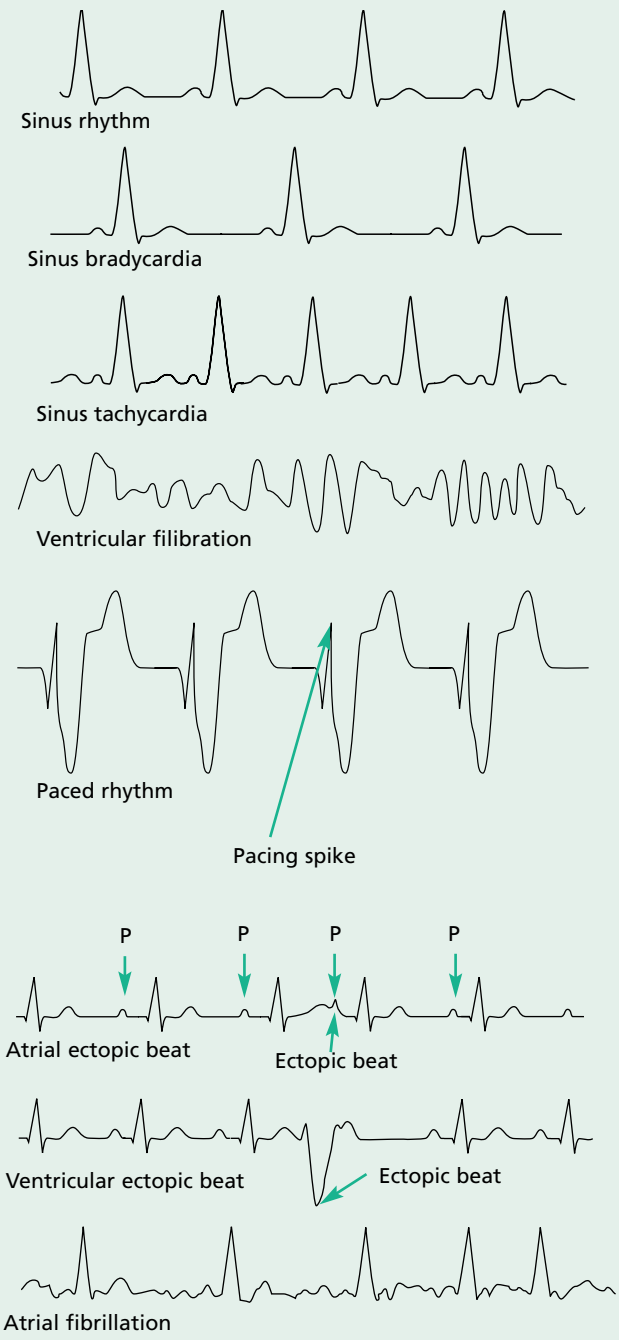
The QRS wave - representing ventricular contraction.

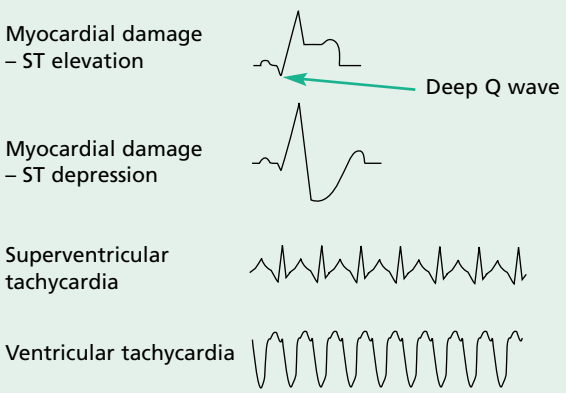
The T wave - representing the resting stage of the heart where repolarisation takes place.

The PQRST complex.



ECG recordings





Further reading

Nash E, Nahas V (1996) *Understanding the ECG: A Guide for Nurses*, London, Chapman & Hall.

Conover MB (1994) *Pocket Guide: Electrocardiography.* Third edition, London, Mosby.

Hampton JR (1992) *The ECG in Practice*. Second edition, London, Churchill Livingstone

Coming soon

Venepuncture – central venous lines	May 26