Electrocardiograph, ECG

Health problem addressed

Electrocardiographs detect the electrical signals associated with cardiac activity and produce an ECG, a graphic record of the voltage versus time. They are used to diagnose and assist in treating some types of heart disease and arrhythmias, determine a patient’s response to drug therapy, and reveal trends or changes in heart function. Multichannel electrocardiographs record signals from two or more leads simultaneously and are frequently used in place of single-channel units. Some electrocardiographs can perform automatic measurement and interpretation of the ECG as a selectable or optional feature.

Reported problems

Because electrocardiographs have electrical safety standards that are well established and adhered to by all major manufacturers, few problems are associated with their use. Of these, the most common is artifact or noise (e.g., broken electrode wires, poor electrode cleaning or improper application, poor skin preparation, patient movement, baseline drift, and interference). Incorrect placement of ECG leads can cause an abnormality to be overlooked. Chest wall thickness can also affect diagnostic accuracy.

Use and maintenance

User(s): Physicians, nurses, other medical staff
Maintenance: Biomedical or clinical engineer/technician, medical staff, manufacturer/servicer
Training: Initial training by manufacturer, operator’s manuals, user’s guide

Environment of use

Settings of use: Hospital (all areas), family medicine practices and other medical offices
Requirements: Uninterruptible power source, battery backup, appropriate electrodes

Product specifications

Approx. dimensions (mm): 120 x 400 x 350
Approx. weight (kg): 6
Consumables: Batteries, cables, electrodes
Price range (USD): 975 - 6,000
Typical product life time (years): 10
Shelf life (consumables): 1-2 years for disposable electrodes/sensors

Types and variations

Portable, cart, desktop, tabletop