Mobile ECG with web-based telemedicine platform

Country of origin    | India

Health problem addressed
Coronary heart disease is one of the leading causes of death across the globe. Every second in some part of the world a person suffers from chest pain or has a heart attack with lack of early warning systems. The problem gets compounded by the fact that the ratio of doctors attending patients is far less in lower and middle income regions.

Product description
The system has been designed to provide a telecardiology platform for remote ECG analysis and real time reporting from the doctor for the attending paramedic or the general practitioner. The portable system gives specialists the possibility to interpret ECG’s from their mobiles, thus bridging the gap between the patient and the specialist. Also the system gives an auditable trail of all the reports right from acquisition to reporting of the patient ECG.

Product functionality
Patient details are entered in the device along with taking their ECG. 20 ECG’s can be stored in the device. Each patient details can be transmitted to the doctor in real time.

Developer’s claims of product benefits
Prevalent solutions use facsimile and dual-tone multi-frequency solutions to implement transmission of ECG’s to the remote doctors. These are one way communications without proper platform for digital reporting of diagnosis from the doctor. This has been overcome with comprehensive auditable online storage. This device has been so designed keeping in view the ease of use, adaptability and scalability. The device can be used not only as an emergency single point of care, but with its local and cloud printing capabilities, it also means that the same device can replace a conventional ECG machine.

Operating steps
1. Connect the patient cable to the ECG connector at the bottom of the device. 2. Clean the skin surface before/after applying electrodes. 3. Connect the electrodes to the patient. 4. Attach the patient cable leads to the electrodes placed on the patient’s skin surface. 5. Switch on. 6. Follow the process on device as mentioned in section 7.2 in manual.

Development stage
The unit was tested and deployed at a renowned 800 bedded multi-specialty hospital and a cardiac critical care center in Mumbai. Further in the first 12 months the devices has been used in cardiac screening camps at multiple remote rural locations within India with more than 10000 ECGs being taken and reported in this period. Certified for CE - 1293.

Future work and challenges
1) Availability of: reliable communication networks, electrical power for device charging in remote rural locations, doctors to report the ECGs on timely basis.
2) Seamless integration of various emergency response teams to take follow actions.
3) Developing and managing software clients for various different smartphones.
4) Slow adoption by medical professional / local administration agencies.

User and environment
User: Patient, physician, technician, nurse
Training: 3 hrs; delivered by company technician
Maintenance: Preventative; once per year

Environment of use
Settings: Urban, rural, ambulatory, at home, primary (health post, health center), secondary (general hospital), tertiary (specialists hospital)
Requirements: Access to cellphone network, power supply for recharging

Product specifications
| Dimensions (mm): | 140 x 97 x 43 |
| Weight (kg): | 0.65 |
| Consumables: | ECG gel, reporting paper |
| Life time: | 7 years |
| Shelf life: | 5 years |
| Retail Price (USD): | 1000-1200 |
| List price (USD): | 1400 |
| Other features: | Portable, reusable, uses software |
| Year of commercialization: | 2010 |
| Currently sold in: | India, Mauritius |

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