Self-powered pulse oximeter

Country of origin | United Kingdom

Health problem addressed

10.8 million children die every year. 99% of these deaths are in developing countries and 2.7 million are due to congestive diseases that result in hypoxemia. Early detection of hypoxemia is essential in reducing mortality and morbidity. SPO2 monitoring facilitates this. SPO2 monitoring is also essential during anesthesia. It is called the 5th vital sign.

Product description

This pulse oximeter is a portable, easy to use monitor that measures blood oxygen saturation levels and the pulse rate. It is designed for use in low resource settings, is rugged and has its own on board human powered energy source.

Product functionality

The oximeter offers the highest quality pulse oximetry on the market. It analyses the entire plethysmographic wave form, locating the onset of a pulse and resulting in extreme pulse detection. It has excellent low perfusion and motion-compensating performance, warning the user and preventing inaccurate readings.

Developer's claims of product benefits

This is a monitor specifically designed for use in low resource settings or where electricity supply is a problem. The SPO2 monitor is rugged and reliable and has its own on-board power generator. Human energy is converted into electricity and saved in rechargeable batteries. The monitor gives 10-15 minutes of monitoring per minute of winding. The monitor may also be recharged using grid power when available. The pulse oximeter is designed to be compatible with a wide range of probes to take advantage of generic offerings when available. Unlike monitors designed for mainstream medical markets, it is very simple to use at low cost.

Operating steps

The SPO2 monitor is a solution to the problem of measuring blood oxygen saturation in developing world health environments. By turning the crank human energy is efficiently converted into electricity and stored in rechargeable batteries. Generic probes ranging from pediatric to adult provide accurate pulse and saturation levels.

Development stage

The pulse oximeter is currently available and in production. It is manufactured in India. Pilot field testing was carried out in South African secondary hospitals and its performance was congruent with "gold standard" high-end pulse oximeters.

Regulatory approval is completed.

Future work and challenges

Product is commercialized.

User and environment

User: Nurse, midwife, physician.

Training: None

Maintenance: Nurse, physician, technician

Environment of use

Setting: Rural. Ambulatory, primary (health post, health center), secondary (general hospital)

Requirements: none

Product specifications

Dimensions (mm): 170 x 85 x 75

Weight (kg): 0.7

Consumables: None

Life time: 5 years

Shelf life: 3 years

List price (USD): 600

Other features: Portable and reusable. Runs on batteries. Uses software.

Year of commercialization: 2011

Currently sold in: South Africa

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