Fetal heart rate monitor

Country of origin | United Kingdom

Health problem addressed

Every year, 1 million babies die during childbirth. Complications during childbirth kill half a million mothers, and a further 1 million babies within a month of birth. Over 99% of these deaths occur in the developing world and many are preventable with timely detection of complications.

Product description

Using advanced Doppler ultrasound technology, the monitor detects and measures the fetal heart rate. This vital indicator of fetal stress allows rural healthcare workers to make life-saving decisions during childbirth. Destined for use in low resource settings, its design focuses on simplicity of use, durability and electrical power independence.

Product functionality

The fetal heart rate monitor is designed for ruggedness and simplicity of use, but its most distinguishing element is the human-powered electricity solution. By using the self-powered technology, simply winding a handle will charge the batteries. Each minute of winding provides about 10 minutes of monitoring time.

Developer's claims of product benefits

Fetal monitoring methods in low income countries are limited to Pinard fetal stethoscopes. Current availability of monitoring in the majority of primary and district care facilities in middle and especially low income countries being limited makes this monitoring unreliable. The accuracy of the Pinard is without much evidence indicating improved outcomes in situations of fetal distress. Doppler ultrasound fetal heart rate monitors are recommended but only 1 % of these devices worldwide are available in low income countries. This device aims at a reduction in perinatal mortality and neonatal encephalopathy. The majority of the midwives who used the monitor preferred it to the Pinard as the device was easy to charge; it was very easy to obtain a reading and quick to identify the fetal heart rate within 30 seconds.

Operating steps

The powerful narrow beam Doppler head is placed on a pregnant woman's abdomen. The fetal heart rate is delivered as an audio signal and displayed as a number in beats per minute.

Development stage

This fetal heart rate monitor won the Index Global Design Award in 2009 and has the potential to dramatically improve health outcomes especially for babies. Pilot field testing was carried out in 9 South African primary care maternity facilities run only by midwives (without doctors).

Future work and challenges

The fetal heart rate monitor is currently available and in production.

User and environment

User: Nurse, midwife, physician

Training: None

Maintenance: Technician

Environment of use

Setting: Rural, 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): 350

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

Year of commercialization: 2010

Currently sold in: United Kingdom, South Africa and other African countries.

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