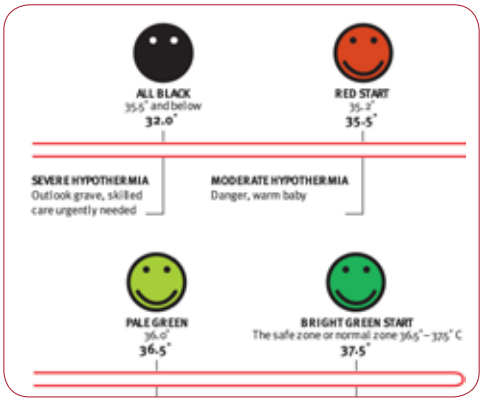
Non-invasive hypothermia indicator for newborns

Country of origin | United Kingdom/United States of America

Health problem addressed

The problem of detecting hypothermia exists throughout the "disadvantaged world" where up to 4 million newborns die within their first 28 days of life from either disease, malnutrition or a combination of both. Preterm, sick and low birth weight babies are especially at risk. The effect for a newborn that has suffered from hypothermia and survived is poorly researched and is in need of urgent attention.



Product description

The hypothermia indicator is a 12mm diameter disc with a black 'face' with two small white "dots" on one side, the other side has a self-adhesive facility. This device comes in a strip of 5 units. Liquid crystal technology provides function for it to perform reliably and accurately within an operating tolerance of +/- 0.5 degree Celsius.

Product functionality

When in situ on a healthy newborn (temperature 36.5 -37.5° C), the device shows a 'bright green' background with a smiling 'face' clearly visible which is the 'safe-zone' for the average 'normal' temperature. Should the temperature drop below 36.5° C, the color fades to a 'pale green' before a 'red/brown' color is displayed. At 35.5° C the 'black' color shows.

Developer's claims of product benefits

A naked newborn exposed to an environmental temperature of 23° C suffers the same heat loss as a naked adult at 0° C. This heat loss is even greater for preterm, sick and low birth weight babies, especially if left wet and uncovered at birth. Hypothermia in the newborn can occur in all climates due to a lack of knowledge and/or procedure. The availability of a very simple, low cost device placed either in an axilla, above the liver or the great vessels of the neck would empower to maintain "the warm chain" immediately following birth. The device has been designed so that also illiterate mothers can understand and safely use it.

Operating steps

1. Choose site under an arm or on the right side of the abdomen. 2. Clean site with an alcohol. 3. Press device firmly into site, white "dots" upright. 4. Provided the body temperature is within the "safe-zone", a smiling face will appear on a bright-green background. Observe every two hours. 5. Mothers should seek advice if the "smiling face" begins to fade or reverts to "black". 6. The device remains attached for up to a week and can be reused.

Development stage

Published, tested, clinical trials conducted. Commercially available. CE No: 0434.

Future work and challenges

Currently, the device is difficult to read in poor light and in the dark. Getting the device widely established has been unexpectedly slow.

User and environment

User: Physician, nurse, midwife, family member

Training: None

Maintenance: None

Environment of use

Settings: Rural, urban, ambulatory, at home, primary (health post, health center), secondary (general hospital), tertiary (specialists hospital)

Requirements: Storage in cool, dark location (out of direct sunlight)

Product specifications

Dimensions (mm): 80 x 20 x 0.001

Weight (kg): 0.002

Consumables: Disposable alcohol wipes, transparent medical tape

Life time: 5 years

Shelf life: 2+ years

List price (USD): 0.40

Other features: Portable, reusable

Year of commercialization: 2010

Currently sold in: India, Russia, USA, UK, Haiti. Australia, Canada, Cyprus, Egypt, Kenya, Netherlands, Papua New Guinea, Peru, Tanzania, Zimbabwe

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