

# Hypothermia monitoring bracelet for newborns

Country of origin | India

Primary function | Monitoring

## Health problem addressed

Newborns are unable to regulate their body temperature, which might lead to hypothermia. Hypothermia affects 4-12 million of Indian newborns yearly. Hypothermia can result in poor growth, poor organ development and death. Preventing hypothermia is recognised by WHO and the Indian Government as an essential part of care for all newborns. However, seemingly simple temperature monitoring often goes overlooked in areas where nurses are few and parents are unaware.



## Disease addressed

Pregnancy, childbirth, and the puerperium.

## Technical descriptions

This hypothermia bracelet was developed by measuring newborn temperature over 4 studies, in 2 different hospitals, with approximately 400 newborns. Wrist and core temperature was correlated ( $R=0.7$ ) and a sophisticated algorithm was developed to accurately identify hypothermia from continuous temperature measurement at the wrist. In parallel, a skin-safe bracelet was designed carefully to make sure it was comfortable, culturally acceptable, usable by the mother, and gave accurate measurements.

## Developer's claims of products benefits

Regular temperature monitoring has the ability to prevent hypothermia and is therefore the standard of care in developed countries. However, as part of a research in more than 80 clinics around India, it was found that nurses are understaffed and unable to monitor newborns regularly. Additionally, parents are often uneducated and unaware of the dangers of hypothermia. For this reason, a thermal monitoring bracelet was developed, based on a technology similar to this of basic thermometer, with an alarm and colour-changing light to report hypothermia.

## Operating steps

Put the bracelet around the newborn wrist. As long as the temperature of the newborn is high enough, a blue light blinks every 30 seconds. If the temperature of the newborn drops below the hypothermia threshold, an orange light blinks and an audio alarm plays until the temperature goes up again. Parents would perform Kangaroo mother care or swaddle the newborn to warm him/her up. If the bracelet continues to sound, medical intervention is required and caregivers should take the baby to a doctor. The device is water resistant, but not water proof. When the bracelet is taken off of the baby, it emits a white light.

## Regulatory status and standards compliance

Silicone Bracelet - 100% hypo-allergenic medical-grade silicone material biocompatible as per ISO-10993 standard  
Thermistor Metal Cup - Stainless Steel SS-316L.

## Use and maintenance

**User:** Self-use/patient, untrained individual, trained caregiver (e.g family member), midwife, nurse, specialised physician.

**Maintenance/Calibration required:** No

## Environment of use

**Setting:** Rural settings, urban settings, at home, primary level (health post, health centre), secondary level (general hospital), tertiary level (specialists hospital), ambulances, newborn surgery.

**Facility requirements:** Sterilization.

**Energy requirements:** Replaceable batteries.

## Product specifications

**Weight (kg):** 0.009

**In UN catalog:** No

## Commercial information

**Reference price (USD):** \$21.00

**Year of commercialization:** 2015

**Currently sold in:** India

**Number of units distributed:** 101-1 000

**Other features:** Portable, single use

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