Health problem addressed
Nearly 1 million newborns in developing countries die from birth asphyxia each year. A similar number are disabled due to compromised breathing at birth. To stimulate spontaneous breathing, or bag-mask ventilate effectively, an open airway is mandatory. Often this requires clearing the mouth and nose of mucus and meconium using vacuum.

Product description
The proposed solution is a bulb suction device that is particularly suitable for use in developing countries. It is clinically effective, easy and safe to use, available at a low price and reusable when disinfected in accordance with instructions, over the product’s lifespan. The device is also suitable for large scale training of birth attendants.

Product functionality
The product benefits newborns suffering from birth asphyxia and in need of clearing the upper airways. Squeezing the bulb generates vacuum so that the birth attendant can extract mucus and meconium from the baby’s mouth and nostrils.

Developer’s claims of product benefits
This product is an improvement over the neonatal suction devices typically used in low-resource settings (i.e. mouth suction or hand bulb suction, available in non-cleanable versions and mainly intended for single patient use) as it can be easily opened, cleaned and boiled for disinfection after use, it is made of very durable silicone and withstands several hundred times of reuse. The transparent material makes it easy for the user to see whether it has been cleaned since last use situation; the low price (available on a not-for-profit basis) combined with number of use situations dramatically reduces the cost per use compared to existing products.

Operating steps
Ensure that the device is clean before use on patient. Squeeze bulb to generate vacuum, and place the nozzle tip into the newborn’s oral or nasal cavity. Slowly release bulb squeeze to extract the mucus, discharge contents into a water container, towel or similar. For repetitive suctioning, keep the body squeezed until suctioning again.

Development stage
The product has been available on a not-for-profit basis for newborn resuscitation projects in developing countries since April 2010. It has been FDA device listed, and is developed to applicable standards and regulation required for CE-marking. Self-declaration for CE-marking is imminent within March 2011.

Future work and challenges
Financing: Although the products is highly affordable and available on not-for-profit basis, individual health care facilities and educational institutions in low-and middle income countries often have limited financial resources and may need to obtain funding from governments or international aid organizations.
Distribution channels: Bureaucracy and often prohibitive customs rates in importing such material to the countries where the need for these products is greatest.

Use and maintenance
User: Family member, midwife, nurse, physician
Training: None required.
Maintenance: Any person responsible for disinfection.

Environment of use
Requirements: The only requirement is that it must be possible to clean and disinfect the device (before first use and between patient uses). Cleaning can be performed by boiling the one-piece device in water, or by more advanced methods.

Product specifications
Dimensions (mm): 40 x 40 x 130
Weight (kg): 0.06
Consumables: None
Life time: 5 years
Retail Price (USD): 3
List price (USD): 3
Other features: Portable and reusable.
Year of commercialization: 2010
Currently available in: 68 countries identified by UN as focus countries relative to UN Millennium.

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