Integrated resuscitation solution

Country of origin | India

Health problem addressed
6 million children across the globe suffer from birth asphyxia each year - 904,000 die of it, 210,000 die in India alone, and many more are disabled for life. This can be prevented by basic and effective resuscitation but requires expertise, which is often lacking at developing world-birthing points.

Product description
This integrated resuscitation solution consists of a simple resuscitation device, a resuscitation aid to position the neck and align airway automatically, and a mechanical sensor to provide real-time objective feedback to operator regarding effectiveness of resuscitation.

Product functionality
The resuscitation device delivers air within a desired range of pressure, volume and flow rate. It enables the user to use both hands to form an effective seal using the mask, which is the biggest challenge with existing devices.

Developer’s claims of product benefits
Existing devices include low-cost bag-mask, tube-mask devices, highly priced and sophisticated T-piece resuscitators, all requiring high skill and training, thereby making them difficult to use. They are also associated with inherent drawbacks of poor seal formation, leakage, and lack of performance feedback. In contrast, this device is a cost-effective solution that includes an intuitive resuscitation device with minimal training. It allows the user to form an effective seal thereby reducing leakage, aids in resuscitation by providing an objective feedback to user on efficacy, and also aids in automatic neck positioning- not present in any current device. It is easy to use, hence has better accessibility at all levels of community healthcare, thus making it more acceptable to local healthcare workers.

Operating steps
Baby is placed on airway alignment tray, that enables automatic neck positioning. Mask is placed on mouth of baby and user activates the air pump to deliver air in the desired range. User observes real time objective feedback with each breath delivered and controls air delivery for subsequent breaths.

Development stage
Intensive clinical observations at community health centers have been done to understand the local needs of the users. Hence, this solution is tailored to the needs of low resource settings of India. In addition, the initial prototypes have been tested in the field in a low resource setting and further iterated based on feedback. The next step is to conduct a mannequin trial in field with healthcare workers, following which a clinical trial would be conducted.

Future work and challenges
Processing is underway for potential collaborations with a non-profit organizations for conducting field studies. Collaborations with the Indian Ministry of Health to provide financial support and help in manufacturing and distribution are ongoing. Concomitantly, there exists a search for financial partners to support activities such as clinical trails, manufacturing and pilot studies.

User and environment
User: Physician, nurse, midwife
Training: can be done in less than 30 minutes which can be administered through a graphical brochure.
Maintenance: cleaning or sterilization after each use

Environment of use
Settings: Rural, urban, ambulatory, primary (health post, health center), secondary (general hospital), tertiary (specialists hospital)
Requirements: None

Product specifications
Dimensions (mm): 250 x 140 x 100
Weight (kg): 0.6
Consumables: None
Life time: 2 years
Shelf life: N/A
Retail Price (USD): Comparable to standard of care
List price (USD): Comparable to standard of care
Other features: Portable, reusable
Year of commercialization: N/A
Currently sold in: N/A

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