

Newborn Heart Rate Monitoring Device

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BACKGROUND

About 10 percent of all babies in the United States require some respiratory assistance. Approximately 13 percent of all babies born in the United States are born prematurely. Often, complications such as underdeveloped lungs will limit breathing ability and cause a need for resuscitation. The infant's heartbeat is the key physiologic metric in providing effective resuscitation. Current methods of detecting neonatal heartbeat pose their own inaccuracies. The most commonly used method, manual palpation of the umbilical cord, requires a medical professional to sense the pulse by manual palpation, a task that requires significant clinical experience, and even then, experienced professionals are prone to critical errors. Auscultation of the heart using a stethoscope is also used commonly but equally fraught with inaccuracies in measurement and dependent on the experience of the operator.

Existing medical heart-rate monitors primarily employ pulse oximetry, which is noninvasive, extremely accurate, and provides information not only on heart rate, but blood oxygenation as well. Unfortunately, these devices typically require 2-3 minutes of initial data collection to establish a patient baseline, creating a "blackout window" during which they are ineffective. Patients in stable condition or under observation are not hampered by this minor inconvenience, however for neonates in respiratory distress or with other complications, two minutes can mean the difference between life and death. Presently, a need exists to capture the neonate heart rate within the 2-minute blackout period.

TECHNOLOGY DESCRIPTION

A neonatologist from UC San Diego's Medical Center has developed a standalone heart rate monitor to quickly detect a neonate's heart rate within seconds of birth. This improved technology is automatic and easy to implement, offering instantaneous heart rate reporting for newborns, including premature babies. A functional prototype of this technology has been developed.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,226,191	03/12/2019	2010-229

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