

Novel respiratory monitor for premature babies ready for FDA review

April 4 2012, By Kevin Hattori



Prof. Amir Landesberg

Researchers at the Technion-Israel Institute of Technology have developed a novel device to continuously and systematically monitor the dynamics of premature babies' breathing. The small, noninvasive device dubbed "Pneumonitor," makes possible the early detection of respiratory problems, allowing for preventative care before the onset of complications. The findings were published in the January issue of *Intensive Care Medicine*.

Dr. Danny Waisman of the Technion Rappaport Faculty of Medicine and Carmel Medical Center and Prof. Amir Landesberg of the Technion Department of Biomedical Engineering, the device's developers, say the device has been already been tested on animals in different disease models – including asthma and respiratory tract disorders.

"In animal studies, we simulated common conditions in [premature babies](#) in the neonatal [intensive care](#) unit, and compared the operation of our device to that of other devices," said Dr. Waisman, who added that the device is now ready for FDA review.

The Pneumonitor has three motion sensors, which are attached to the premature baby on both sides of the chest and upper middle region of the abdomen. Among the things the sensors monitor are breathing effort and symmetry of lung ventilation. The device beeps when respiratory deterioration is detected, and provides information to assist with the diagnosis and treatment of the problem.

The device could be a useful advance over devices currently used in intensive care units. According to the researchers, 45% of all complications in premature babies go undetected by devices currently used in intensive care units, and are detected only by medical staff. When these devices do detect a problem, it is usually already in the late stages – after blood oxygen declines and the event becomes dramatic. And the doctors must still identify the cause of the event.

According to the March of Dimes, preterm birth (birth that occurs before the 37th week of pregnancy) occurs in about 12 percent of all pregnancies in the United States. All preterm babies are at significant risk for health problems, including mental retardation, motor paralysis or blindness. 550,000 premature babies are born each year in the U.S. alone (Institute of Medicine report Preterm Birth, 2007).

The Technion has registered a patent for the device, and has set up a company called Pneumedicare. Located in Yokne'am, [Israel](#), Pneumedicare is managed by Dr. Carmit Levy, who has a Ph.D. from the Technion Department of Biomedical Engineering.

Provided by American Technion Society

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