For the user, by the user: Lifebox's innovative new technology has life-saving potential for young children at risk of pneumonia.

A new pulse oximetry probe design for use in low-resource settings, developed in collaboration with healthcare workers in Bangladesh and Malawi, could play a critical role in saving young children from pneumonia - a leading killer of under-5s worldwide.

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Guadalajara, Mexico: Lifebox, a nonprofit working to make surgery safer and a global leader in oxygen monitoring technology for low-resource settings, has developed an innovative pulse oximetry probe for children under the age of five. Developed with support through a grant from the Bill & Melinda Gates Foundation the design, presented at the 48th Union World Conference on Lung Health today, has the potential to radically improve access to oxygen monitoring worldwide.

Pulse oximetry plays a critical role in the diagnosis and treatment of pediatric pneumonia, which kills nearly a million children under the age of five each year. But challenges of design, cost and distribution have limited spread of the technology in countries where it can make a life-saving difference.

"Low blood oxygen levels are a serious, life-threatening, and all too common complication of pneumonia for vulnerable children living in low-resource settings," explained Dr. Eric McCollum, pediatric pulmonologist at Johns Hopkins University, and a senior member of the Lifebox project team led by Drs. Isabeau Walker and Iain Wilson.

"To date there are few pulse oximeters in resource-poor settings that are suitable for use in children of all ages. As a result, pulse oximetry is poorly implemented and the lives of thousands of children suffering from pneumonia are needlessly at risk. The new Lifebox probe is potentially a game changer - it can effectively be used on all children, including newborns; it will be durable, reusable, and low cost; and we hope it will be part of the solution in settings with the greatest burden of hypoxemia."

Lifebox developed the new probe through an 18-month user-led design process that engaged community health workers in Bangladesh and Malawi, who informed each step of the project. Following rigorous testing, the resulting oximeter probe design should be robust, reliable, and affordable when manufactured.

Unlike most oximetry technologies optimized for under-5s, the Lifebox probe is reusable. In high-resource settings, clinicians often use disposable pulse oximeter probes for monitoring pediatric patients. Although easy to use, their price is a barrier for use in low-resource healthcare systems.

“Listening and learning from our colleagues, helping them access proven technologies that have historically failed to reach low-resource settings is what guides our work,” said Lifebox Global CEO Kris Torgeson. “Using our experience in affordable, robust pulse oximetry to help develop a tool to help more healthcare providers diagnose and treat childhood pneumonia is especially gratifying.”

End-user testing of Lifebox’s innovative probe design will continue in a number of other countries. But the impact of the right technology, in combating pediatric pneumonia is clear.

“Previously in the village they were saying that when a child is put on the oxygen machine it facilitates death, therefore it was the oximeter making problems,” explained one community healthcare worker in Malawi. “But this time, because children are put on oxygen earlier they survive. And it’s because we knew the saturation.”

Dr Nick Boyd will present “Pediatric pulse oximeters for low-income countries: Lifebox experience” at the 48th Union World Conference on Lung Health in Guadalajara, Mexico, on October 12th, 16:00-17:30 in Hall 4 - Events Ballroom, as part of the symposium on “Childhood pneumonia in the sustainable development era: innovations targeting diagnosis and care in low-income settings”.

A following presentation will be made on Friday 13th October, 15:35-15:55 in the Technical Innovation Zone.

For more information visit www.lifebox.org/pneumonia

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About Lifebox
Lifebox is a global nonprofit working to make surgery and anesthesia safer, and a leader in oxygen monitoring technology for low-resource settings. Chaired by Atul Gawande, MD, FACS, and co-founded by the Association of Anaesthetists of Great Britain and Ireland, the Brigham and Women’s Hospital, the Harvard T. H. Chan School of Public Health and the World Federation of Societies of Anaesthesiologists, Lifebox partners with colleagues in more than 100 countries. For more information, visit www.lifebox.org or follow @SaferSurgery on Twitter.

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