

# Continuous regional analysis device for neonate lung (CRADL)

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## CONTINUOUS REGIONAL ANALYSIS DEVICE FOR NEONATE LUNG (CRADL)

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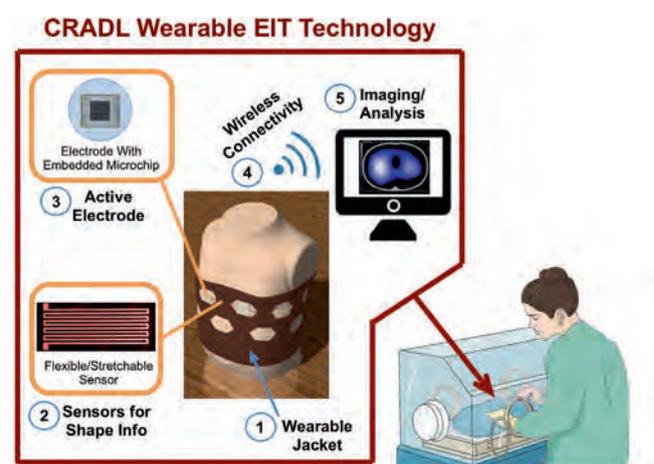
**INTRODUCTION** Each year 15 million babies are born prematurely and many suffer from respiratory failure due to immaturity of the lung and lack of control of breathing. Heterogeneity of lung aeration, resulting in areas of lung over inflation and lung collapse, plays a crucial part in the risk of mortality and morbidity due to respiratory failure. This distribution of lung aeration cannot be detected by conventional bedside monitoring tools and imaging methods. Thus, an imaging technique for continuous non-invasive bedside monitoring of infants lung function is urgently needed. In order to address this, a new project known as CRADL has been established which will use EIT technology to monitoring interventions in the paediatric population by providing quantitative information on regional lung aeration and ventilation to guide the optimization of respiratory therapy by applying EIT-based imaging system for *in-vivo* monitoring of neonatal and paediatric lung function in ICUs.

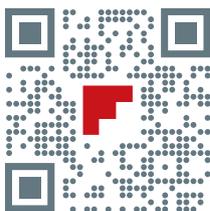
**METHOD** The purpose of this research project is to provide quantitative information on regional lung aeration and ventilation to guide the optimization of respiratory therapy by applying an EIT-based imaging system for *in-vivo* monitoring of neonatal and paediatric lung function in ICUs. The system will provide a non-invasive measure of lung homogeneity and lung function, suitable for use in small infants, whether breathing spontaneously or requiring assisted ventilation, and also older infants and children with respiratory failure. Furthermore, the

results of this project can also translate to adults with respiratory failure, because the basic concepts are similar in the paediatric and adult population.

**RESULTS** The project started in January 2016 funded by the EU and Swiss government to the value of 5.5 MEuros, consisting of 11 partners. It represents a milestone in the development of EIT for clinical use; initial results on the projects progress will be presented during the conference. Figure 1 illustrates the overall concept of the project.

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Swisstom creates its competitive edge by passionate leadership in non-invasive tomography with the goal to improve individual lives and therapies.

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