

RESPIRATORY RATE MONITOR



Machine vision in respiratory rate monitoring

The need

When monitoring patients, breathing is one of the most important vital functions to pay attention to. An abnormal respiratory rate can be a predictor of serious adverse outcomes, such as sepsis among patients with infections, and is a key component in Emergency triage. However, peer-reviewed studies have consistently highlighted serious gaps in recording respiratory rates: most recently only 36% of measurements were considered accurate (Journal of Hospital Medicine, Keshvani et al 2019). Improvement in monitoring with a new measuring instrument would help healthcare professionals in their daily work and improve the quality of care in speciality and primary healthcare.

Impact

- Respiratory rate information is available in triage situations.
- Real world usage identified improvements, including better handling of patient movement.
- 4 in 5 nurses surveyed found the solution very easy or easy to use.

* Pilot study at the Emergency Department of Oulu University Hospital

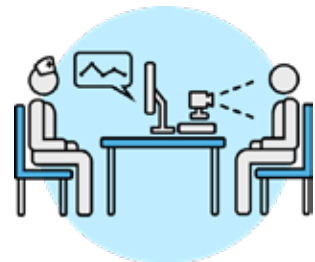
The solution

The NE Device SW vital signs monitor **Vitacam™** uses computer vision and a regular digital camera to remotely measure respiratory rate. The software application counts the chest movements of a patient, observing multiple landmarks on the chest simultaneously to obtain a more reliable measurement. Neither expensive specialized equipment nor physical contact with a patient is needed. During emergency triage assessment, the software supports clinical decision-making by providing continuous, real-time measurements. As much of the process is automated, the clinician is able to focus on other tasks while still gaining valuable intel on a patient's condition. By providing nurses with additional clinical data, our goal to improve patient safety. **Vitacam™** can also be adapted to a smartphone and cloud-based solution for remote monitoring.

#Contactless

#Customizable

#ClinicalSafety



Co-creation and Business Support

Pilot region: Oulu (Finland) | Period: April 2019- April 2020



Challenger



Solver



Users



Supporter



Funder

Oulu University Hospital

NE Device SW

Nurses

BusinessOulu

Oulu Region Council

3 Nurses
1 MD
2 Project Designers
2 Innovation Experts

3 software engineers
1 QA specialist

30+ Nurses

5 business development experts

2 experts

Hear the stories!



The solution makes it possible to measure the respiratory rate from unmonitored patients. It is great to see how an idea turns into reality.

Marja Ylilehto, Nurse and Project Designer at Oulu University Hospital



Co-developing a product with healthcare professionals has been truly a joy. The seamless dialogue enabled us to prune the product fully for the actual use-case, knowing what can be beneficial. With the rising healthcare needs and newly invented technological possibilities, this way of working is hopefully here to stay.

Miikka Kirveskoski, Chief Technology Officer at NE DEVICE SW



About inDemand

inDemand boosts digital health solutions proposed and co-created with healthcare professionals

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