

# THE PULMONARY DEFENDER

## WEARABLE ULTRASOUND MONITOR



### The Problem & Need

#### Pulmonary Edema

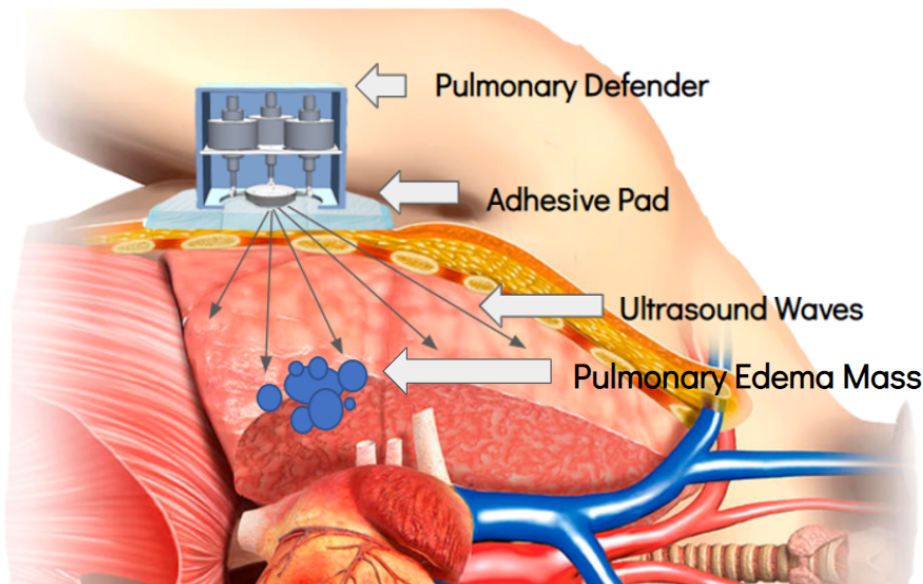
##### Accumulation of fluid in the lungs

- There is currently no simple and quick way to diagnose Pulmonary Edema
- Current care cycle includes numerous expensive X-rays, diuretics, bloodwork, and electrolyte transfusions once severe symptoms are already present [1]
- Identifying Pulmonary Edema before observable symptoms occur can reduce screening times and treatment costs

**Treating Pulmonary Edema after symptoms develop is too late**



**There is a need to monitor the development of Pulmonary Edema before symptoms develop**



**The Pulmonary Defender is a wearable monitoring device that utilizes ultrasound to measure the accumulation of lung fluid to catch pulmonary edema before symptoms develop**

### The Solution

#### The Pulmonary Defender

- ✓ Catch Pulmonary Edema early
- ✓ Reduce hospital time and costs
- ✓ Improve patient outcomes
- ✓ Prevent fluid overload
- ✓ Simple, minimal set-up, easy to use

# Key Features & Technical Specifications

## Auto-Adjusted Detection

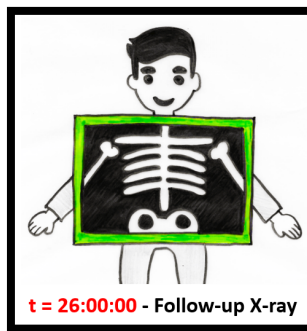
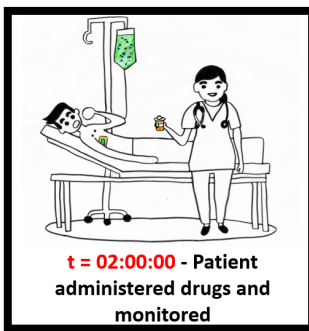
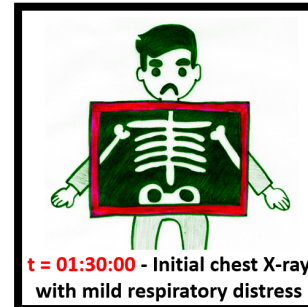
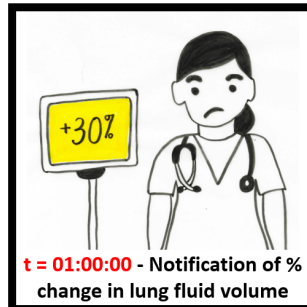
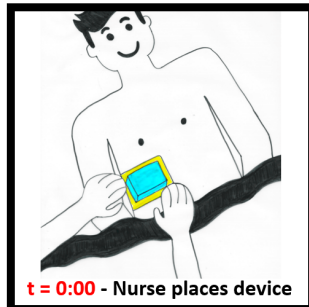
Transducer automatically angles and scans across lung to detect optimal location

## Ergonomic Design

Device sits on skin with low weight and minimal obstruction to movement

## Hands-Free Usage

Smart detection allows zero manipulation after device placement



## Disposable Pad

- Biocompatible Acrylic Adhesive
- Ultrasound transmission gel
- 8" x 4" dimensions

## Reusable Detector

- 1 MHZ Ultrasound Transducer
- Linear Actuator 12 VDC Motor
- 5" x 3" x 2" dimensions



## Contact Detection Innovation

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## The Market



The global Pulmonary Edema market is expected to grow at a CAGR of 7.2% from 2017 to 2023 [2]



Market growth driven by increasing prevalence of cardiovascular conditions



Pulmonary Edema treatment costs roughly \$15,344 per hospital visit and increases \$5,243 per ICU visit [3]

1. Platz E, Jhund PS, Campbell RT, McMurray JJ (September 2015). "Assessment and prevalence of pulmonary oedema in contemporary acute heart failure trials: a systematic review". Eur. J. Heart Fail. 17 (9): 906-16. doi:10.1002/ehf.321. PMC 4725064. PMID 26230356.

2. "Pulmonary Edema Market Research Report- Forecast to 2023." MRFR, www.marketresearchfuture.com/reports/pulmonary-edema-market-5607.

3. Child, Debby, et al. "The Costs of Fluid Overload in the Adult Intensive Care Unit: Is a Small-Volume Infusion Model a Proactive Solution?" ClinicoEconomics and Outcomes Research. 2014. p. 1. doi:10.2147/ceor.s72776.